ORDER NO. AD9402037C2

Service Manual

Stereo Cassette Player

Mini Cassette

RQ-S75

DOLBY SYSTEM *

Colour

(K)...Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe.	(K)
(EB)	Great Britain.	

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

RQ-S60 MECHANISM SERIES (AR90)

SPECIFICATIONS

Power Requirement:	Battery; DC 1.5V one "AA" size battery (not included) (Panasonic R6, LR6 or equivalent not included) Rechargeable Battery; DC 1.2V with an included Panasonic Rechargeable Battery (RP-BP62EYA) × 1
Power Output:	5mW + 5mW
Output:	Headphones; 16Ω (mini jack Φ3.5)
Dimensions:	(W × H × D) 108.0 × 77.2 × 22.5mm
Weight:	182g (with rechargeable battery)
Charger: (E)	Input; AC 220V, 50Hz, 4W (RP-BC155EY-0) (included)
(EB)	Input; AC 240V, 50Hz, 4W (RP-BC155EBYA) (included)
	Output; DC 1.2V, 350mA
Frequency Response: (−6dB)	15~20,000Hz (with a normal tape) 15~20,000Hz (with a CrO_2 tape) 15~20,000Hz (with a Metal tape)
Motor:	Electrical governor motor
Track System:	4-track 2-channel stereo playback
Tape Speed:	4.8cm/s

Note: Design and specifications are subject to change without notice.
Weight and dimensions are approximate.

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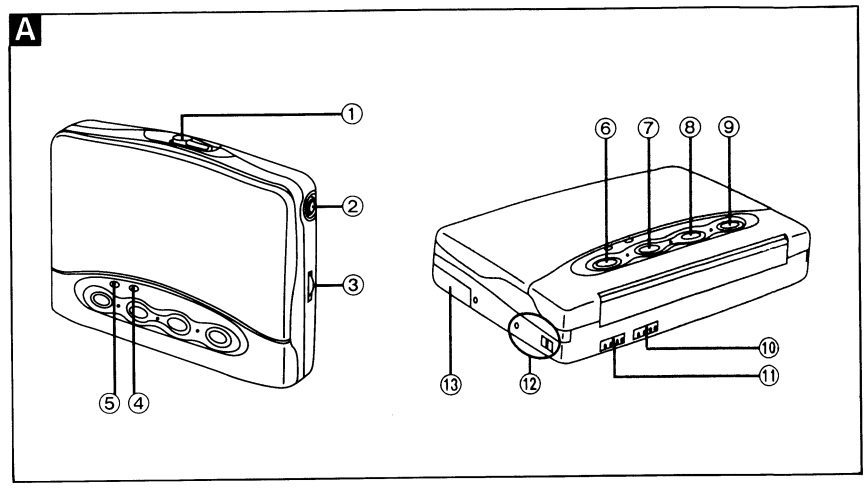
Panasonic

■ LOCATION OF CONTROLS

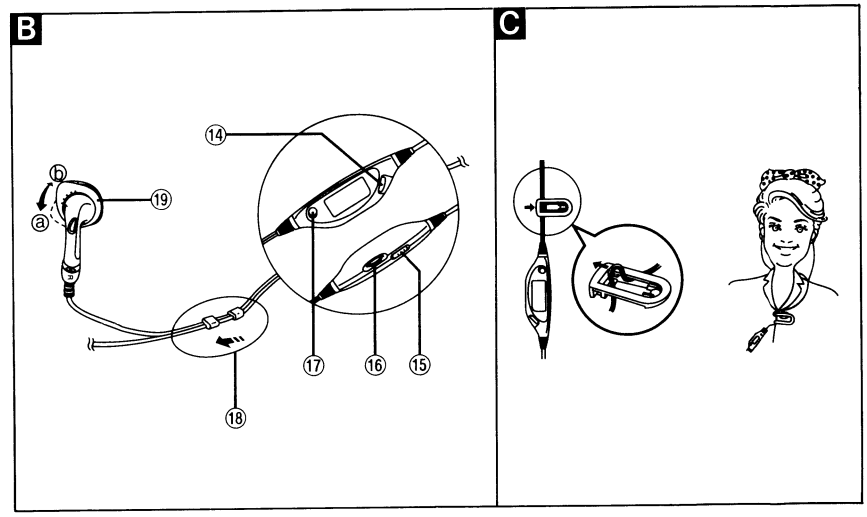
Main unit A

① **Cassette compartment cover open lever (OPEN)**
② **Headphones jack (∩) 16Ω φ3.5**
③ **Volume control (VOLUME)**
④ **Operation/battery check indicator (OPR/BATT)**
⑤ **Hold off indicator (HOLD OFF)**
⑥ **Rewind button (REW)**
⑦ **Stop button (■)**
⑧ **Play/direction button (◄ ►)**
⑨ **Fast forward button (FF)**
⑩ **Play mode selector (Reverse mode, Blank skip)**
⑪ **Dolby noise reduction selector (DD NR)**
⑫ **Connection part for battery case**
⑬ **Rechargeable battery compartment cover**



Stereo earphones with remote controller B

⑭ **Tape operation button**
⑮ **Hold switch (HOLD)**
⑯ **Volume control (VOLUME)**
⑰ **ASC equalizer button (ASC EQ)**
⑱ **Slider**
When not in use slide up the slider to prevent entanglement of the cord.
⑲ **Fitting ring**



■ Before using the stereo earphones

The size of the earpiece can be adjusted.
When it's too loose in the ear, turn the fitting ring to ⓐ, when it's too tight, turn to ⓑ.

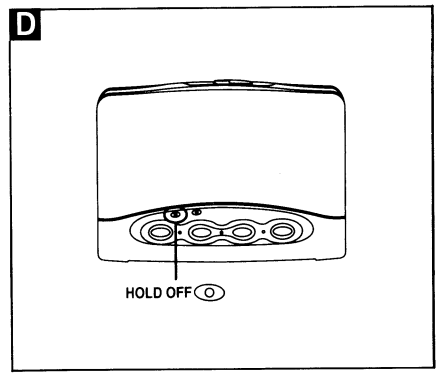
■ How to attach the cord clip C

Fit the cord securely into the groove in the clip.

Auto hold operation D

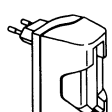
This unit is equipped with an auto hold system which makes all control buttons inoperable. To release the hold state, simply touch any button to illuminate the green "HOLD OFF" indicator for up to 3 seconds.
Control buttons, i.e. ◄ ►, ■, FF, and REW, must be pressed while the green "HOLD OFF" indicator is illuminated.

Note:
Keep the front panel buttons clean and dry otherwise the auto hold system may not work properly.

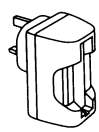


■ ACCESSORIES

Stereo earphones with remote controller ..... 1 pc.
(RFEV121P-KS)

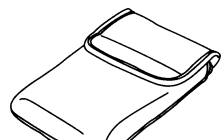


(RP-BC155EY-0 (E))

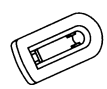


(RP-BC155EBYA (EB))

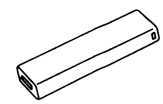
Charger ..... 1 pc.



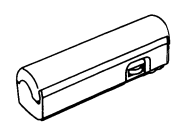
Carrying bag ..... 1 pc.
(RFC0019-K)



Cord clip..... 1 pc.
(RGQ0090-K)



Rechargeable battery ..... 1 pc.
(RP-BP62EYA)



Battery case ..... 1 pc.
(RFA0310-K)

■ POWER SOURCE

This player can operate on any of 2 different power sources:
1. Rechargeable battery (included)
2. Dry cell battery (not included)

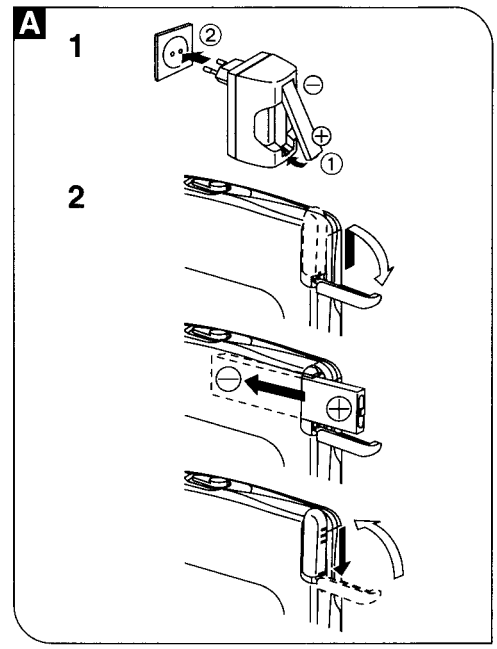
Rechargeable battery A

For its initial use after purchasing or after a long time interval (more than three months), be sure to recharge the rechargeable battery.

Normally 2 hours recharging will give approximately 5 hours tape playback (at 25°C).

1 Recharge the rechargeable battery.

2 Insert the charged battery into the unit.



Dry cell battery B

1 Insert a R6/LR6 battery (UM-3 or equivalent, not included) into the battery case.

2 Attach to the unit.

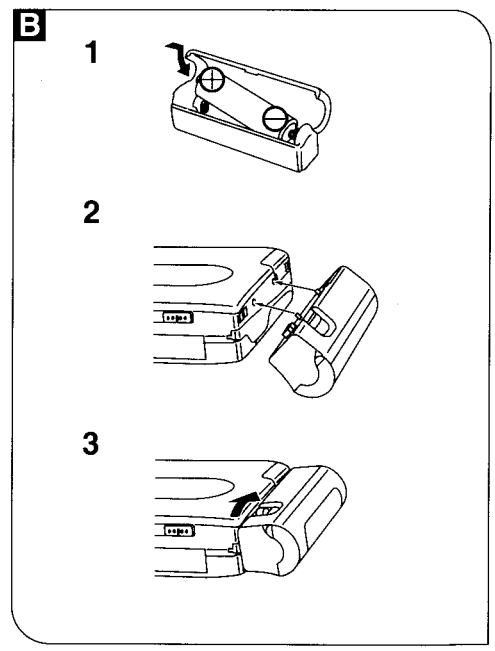
3 Turn the screw until it locks.

■ To extend the playback time

Install both types of battery (rechargeable and dry cell battery) in the unit.

■ When the battery becomes weak

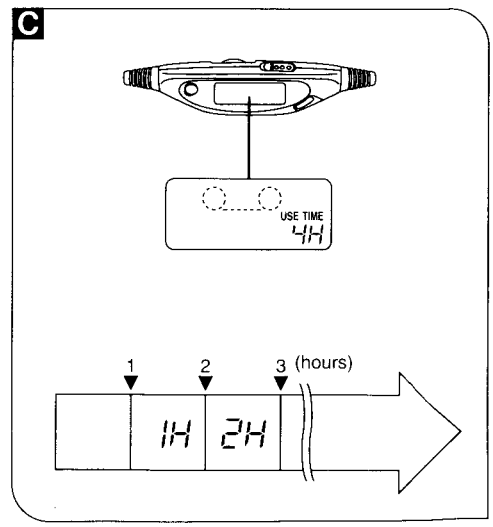
The OPR/BATT indicator will dim or turn off. Recharge the rechargeable battery or replace the dry cell battery with new one.



Use time indicator C

This unit adds up the total operation time in hours since installing a battery. For example, when the unit has been operated for an hour, display shows "USE TIME 1H ", after 2 hours display shows "USE TIME 2H ", and so on. The battery life may differ according to the condition of batteries used.

Notes:
- Play time may be shorter depending on the operating conditions, e.g. repeating fast forward or rewind etc.
- Use time indicator will reset to zero when both batteries are removed.



■ REMOTE CONTROL OPERATION

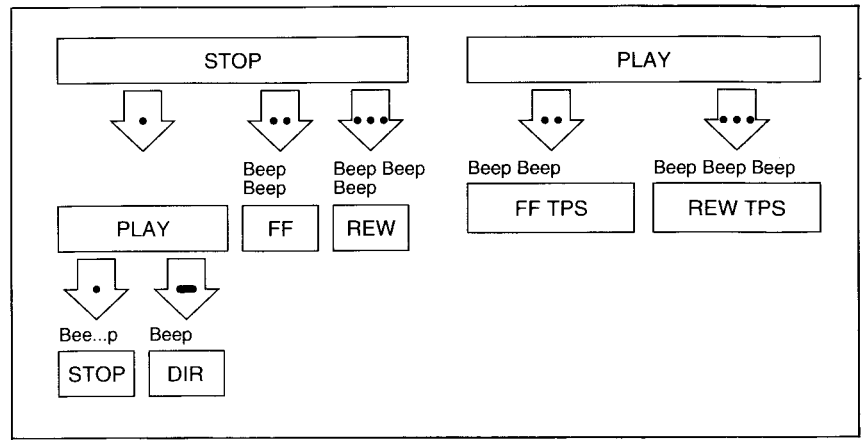
To change the tape operation

Press the tape operation button.

- • : Press once to play and stop.
- ▬ : Press and hold to change the direction.
- •• : Press twice for fast forward or FF TPS.
- ••• : Press three times for rewind or REW TPS.

●When pressing the button twice or three times in succession, press it within one second and at equal interval.

●Confirmation beep can be heard as shown on the figure.



To change the tone

Press ASC EQ during playback.

Every time you press ASC EQ the tone will change as follows in turn.

ⓐ Indicates the tone.

●Confirmation beep can be heard as shown in the figure.

NOR:

Ideal for listening indoors or in other quiet locations.

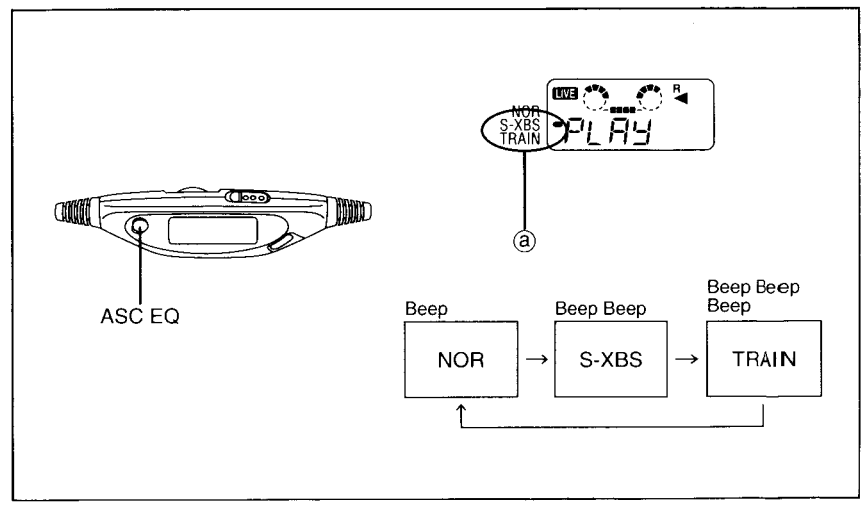
S-XBS:

Boosts the low frequency range.

●If the sound distortion occurs, turn down the volume.

TRAIN:

Gives a more natural quality to the sound and reduces strain and fatigue when you listen for long time. It also cuts down the audible level of sound which disturbs people around you.



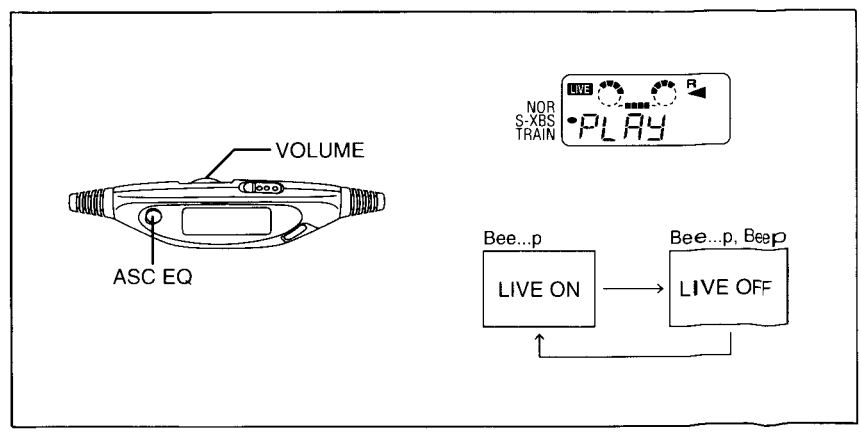
To use or cancel the LIVE effect, press and hold ASC EQ during playback.

●Confirmation beep can be heard as shown in the figure.

LIVE:

Adds gloss to the vocal.

●This function may not be effective according to the source.



To adjust the volume

Before using the VOLUME on the remote control, be sure to adjust the volume control on the main unit to "5–7" position.

■ PROCEDURE FOR THE REPLACEMENT OF THE MECHANISM BLOCK

• How to replace the mechanism block

The mechanism block is supplied without other parts as a semi-assembly. The head block, motor and belt are supplied separately from the mechanism block.
If the mechanism block is exchanged as a replacement assembly, follow the preparation procedure below.

Preparation procedure

Remove the head block, motor and belt from the mechanism to be replaced and replace those parts to the new mechanism block.
(Refer to the "PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM".

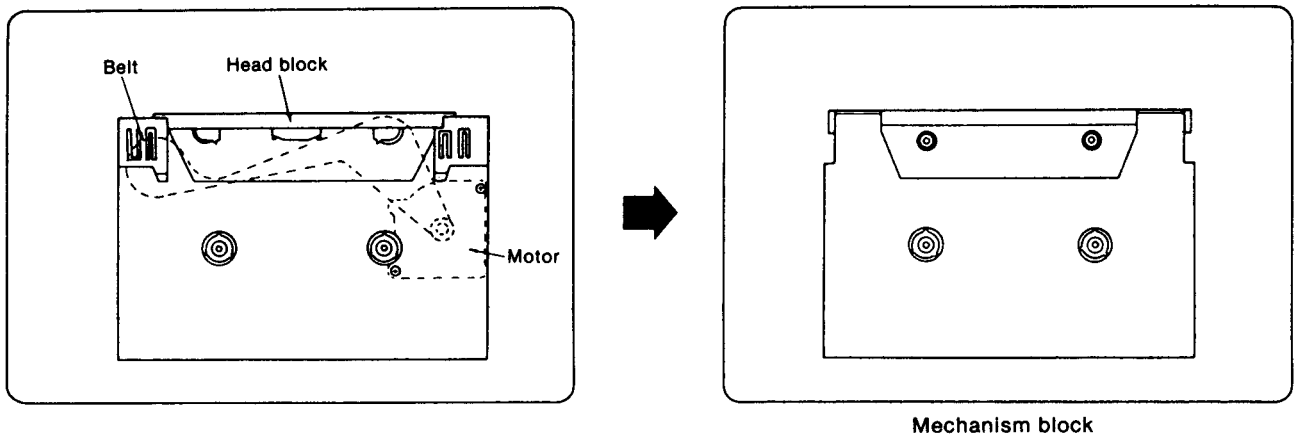


Fig. 1 Fig. 2

Note: The adjustment of the mechanism block is unnecessary after replacement.

• How to replace the head block

The head and pinch roller are supplied together in the head block. The pinch roller is also supplied separately.

Preparation procedure

The head block for replacement is not supplied with a holder as shown in the figure below. Therefore, remove the holder from the block to be repaired and mount it to the new head block. Then, proceed to replace the head block.
(Refer to the "PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM".

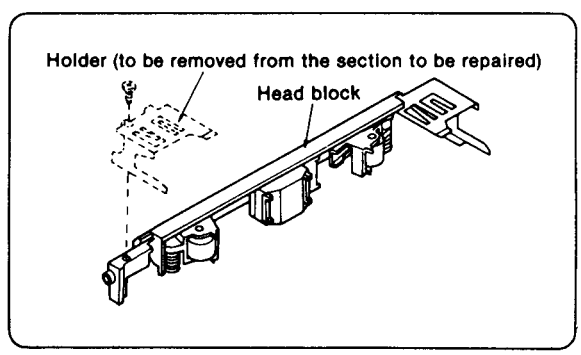


Fig. 3

Note: Head azimuth adjustment is unnecessary.

■ PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM

• How to remove the mechanism

Follow the procedures in Ref. Nos. 1~7 in the Disassembly Instructions. (See pages 7 and 8.)
※ After replacing the parts, refer to the notes for assembly. (See pages 9~11.)

• How to remove the head block and pinch roller

1. Follow the procedures in Ref. Nos. 1 and 6 in the Disassembly Instructions, remove the cabinet ass'y and cassette lid ass'y. (See pages 7 and 8.)
2. Unsolder the head FPC. (7 points.) (See Fig. 4.)
3. Remove 2 screws (❶, ❷) in order to remove the head block. (See Fig. 5.)
4. Remove 2 washers. (See Fig. 6.)
5. Remove 2 springs in order to remove the pinch roller. (See Fig. 7.)

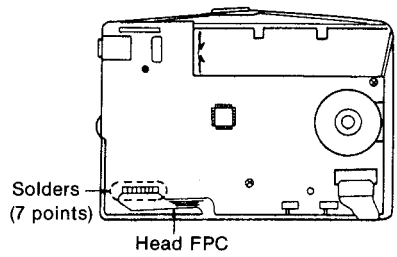


Fig. 4

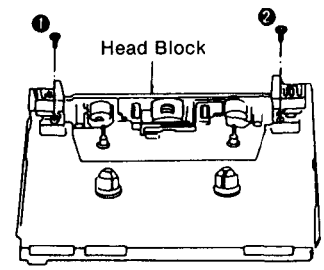


Fig. 5

• How to remove the motor and belt

1. Follow the procedures in Ref. Nos. 1, 2 and 6 in the Disassembly Instructions. (See pages 7 and 8.)
2. Remove 2 screws (❶~❷). (See Fig. 8.)
3. Remove the motor in the direction of the arrow. (See Fig. 9.)
4. Remove the coil P.C.B. from the motor. (See Fig. 10.)
5. Remove the belt from the motor. (See Fig. 10.)

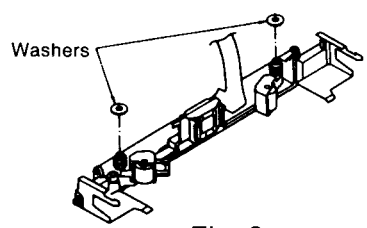


Fig. 6

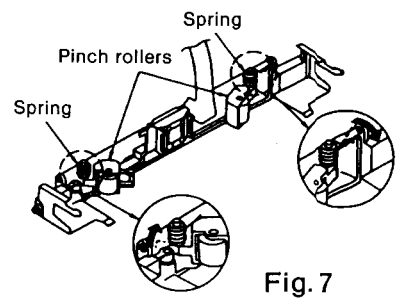


Fig. 7

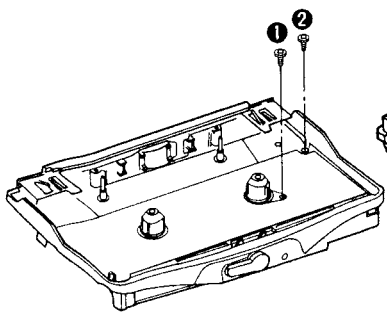


Fig. 8

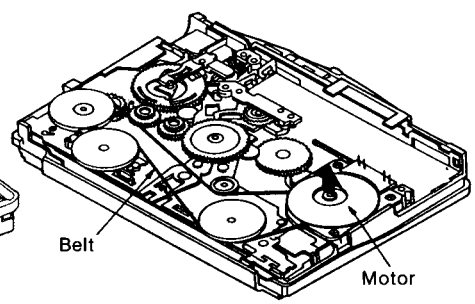


Fig. 9

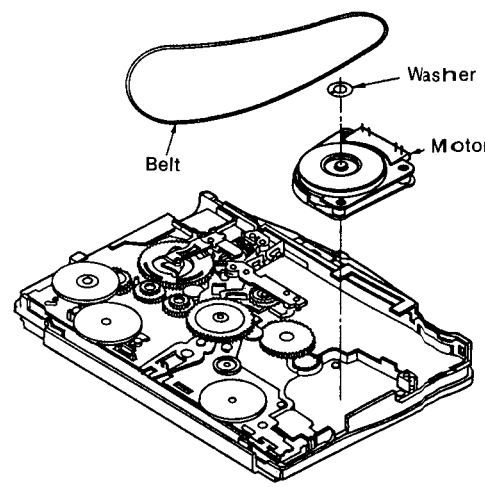


Fig. 10

• When install the belt to motor, push up the motor by insert the non-magnetic material sheet between bottom of the motor and the chassis, and install the belt between top of the motor and the coil P.C.B. (See Fig. 11, 12)

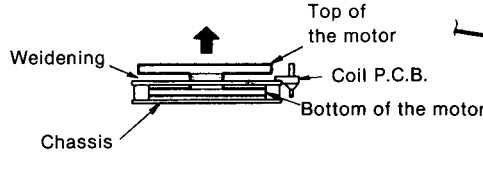


Fig. 11

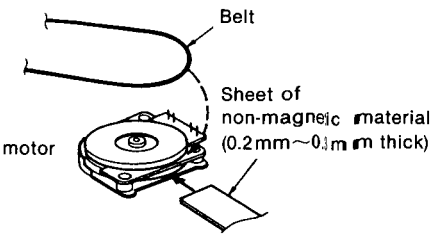
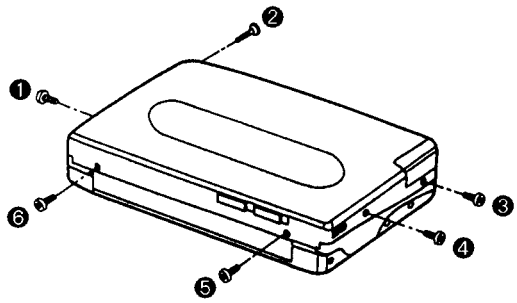


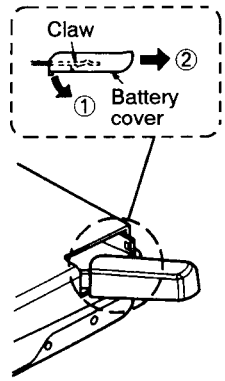
Fig. 12

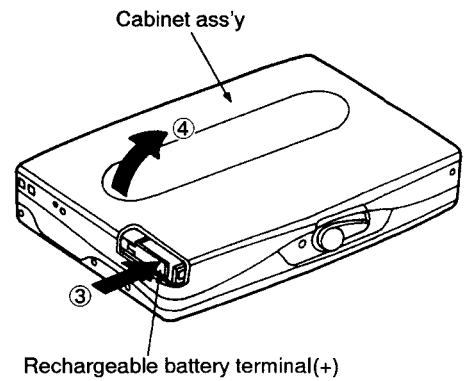
■ DISASSEMBLY INSTRUCTIONS

Ref.No. 1	Removal of the cabinet ass'y

Procedure 1







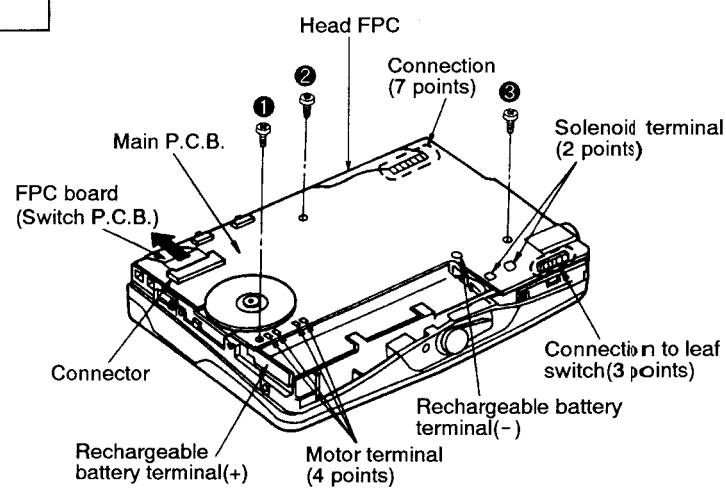
1. Remove the 6 screws(❶~❻).
2. Remove the claw in the direction of arrow ①, and then remove the battery cover in the direction of arrow ②.
3. Remove the cabinet ass'y in the direction of arrow ④, while pushing the rechargeable battery terminal(+) in the direction of arrow ③.

Ref.No. 2	Removal of the main P.C.B.

Procedure 1→2

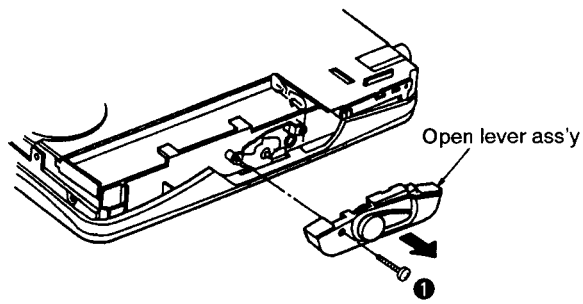
1. Remove the 3 screws (❶~❸).
2. Unsolder the head FPC (7 points).
3. Unsolder the motor terminal (4 points).
4. Unsolder the solenoid terminal (2 points).
5. Unsolder the rechargeable battery terminal(-)(1 point).
6. Unsolder the connection between leaf switch and main P.C.B. (3 points).
7. Pull out the FPC board of the switch P.C.B. from connector on the main P.C.B.

Note: When the main P.C.B. is removed, the rechargeable battery terminal(+) will also be removed.



Ref.No. 3	Removal of the open lever ass'y

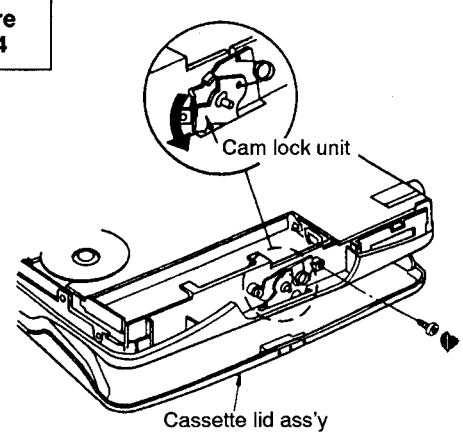
Procedure 1→3



1. Remove the 1 screw(❶).
2. Remove the open lever ass'y in the direction of arrow.

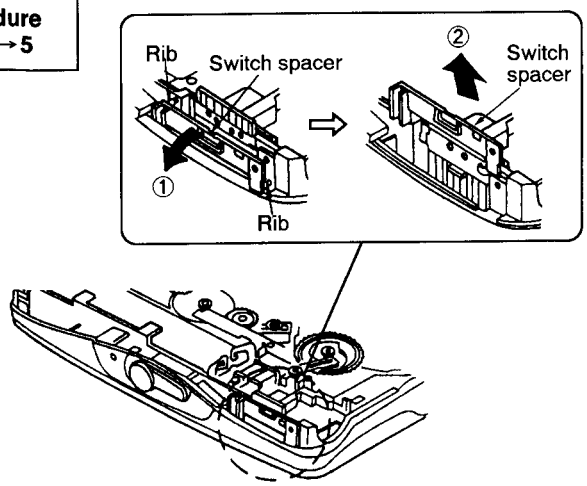
Ref.No. 4	Removal of the cam lock unit

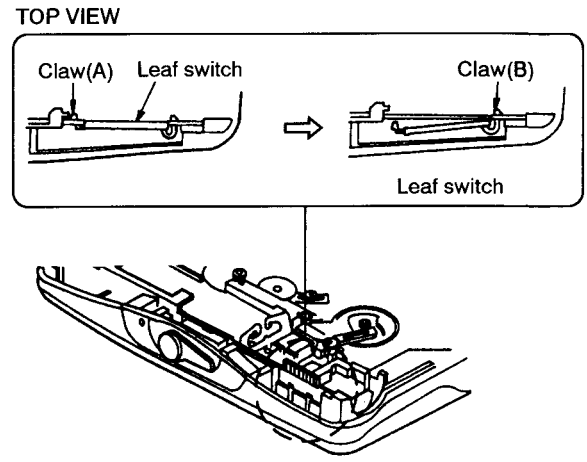
Procedure 1→3→4



1. Turn the cam lock unit in the direction of arrow to open the cassette lid ass'y.
2. Remove the 1 screw(❶).

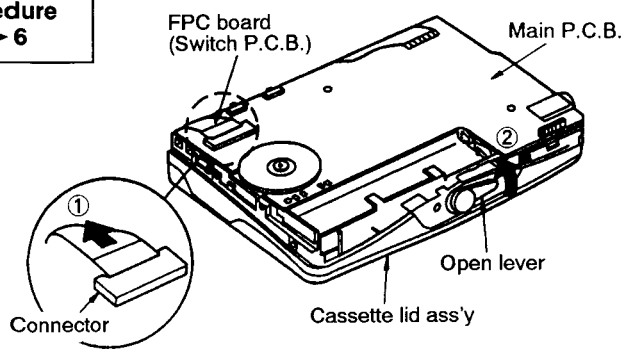
Ref.No. 5	Removal of the leaf switch
Procedure 1→2→5	

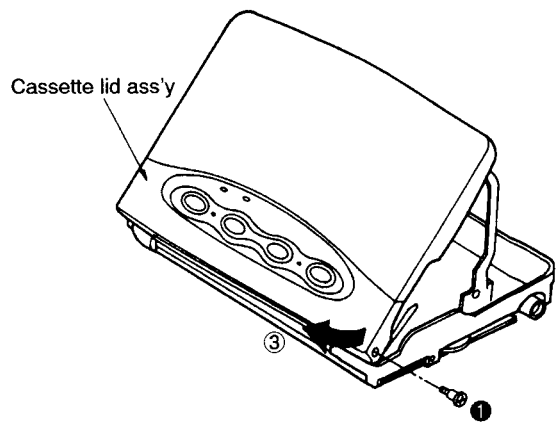




1. Pull the switch spacer in the direction of arrow ①, and release the ribs.
2. Remove the switch spacer in the direction of arrow ②.
3. At first release the claw(A), and then release the claw(B).
4. Remove the leaf switch.

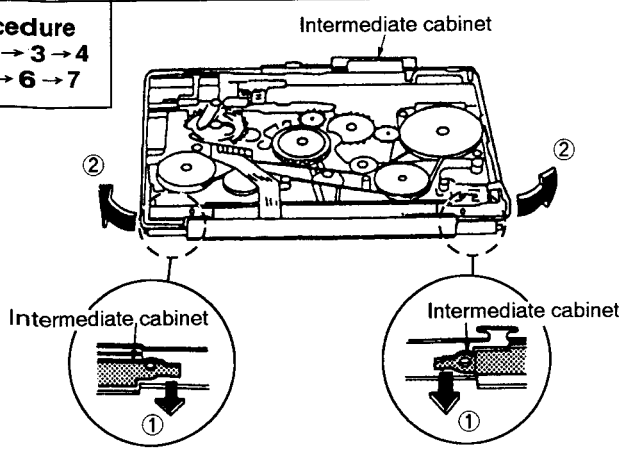
Ref.No. 6	Removal of the cassette lid ass'y
Procedure 1→6	

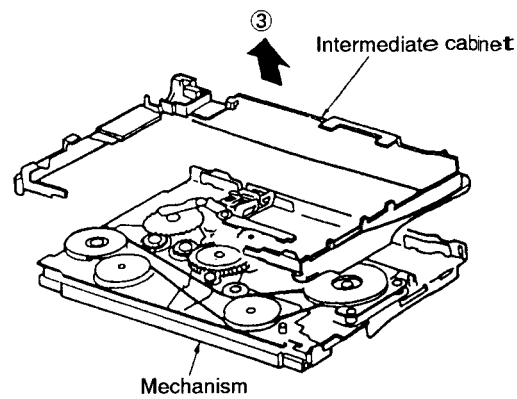




1. Pull out the FPC board of the switch P.C.B. from the connector on the main P.C.B. in the direction of arrow ①.
2. Turn the open lever in the direction of arrow ② to open the cassette lid ass'y.
3. Remove the 1 screw(❶).
4. Remove the cassette lid ass'y in the direction of arrow ③.

Ref.No. 7	Removal of the intermediate cabinet
Procedure 1→2→3→4 →5→6→7	

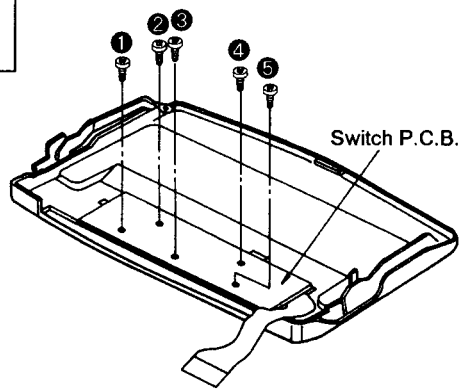




1. Slide the intermediate cabinet in the direction of arrow ①, and stretch it a little in the direction of arrow ②.
2. Lift the intermediate cabinet in the direction of arrow ③.

Ref.No. 8	Removal of the switch P.C.B.

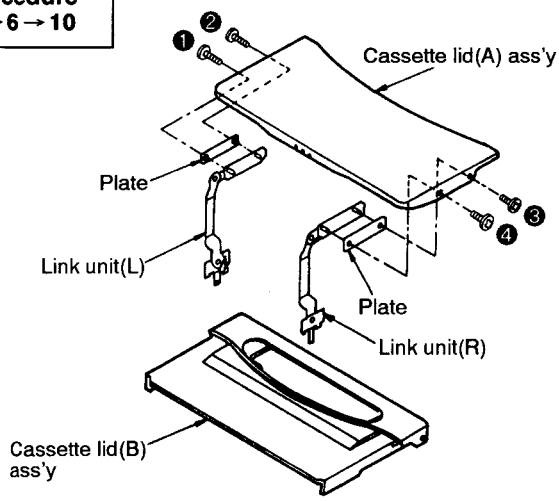
Procedure 1 → 6 → 8



• Remove the 5 screws(❶ ~ ❺).

Ref.No. 10	Removal of the cassette lid(A) ass'y, cassette lid(B) ass'y, link unit(L),(R) and plates

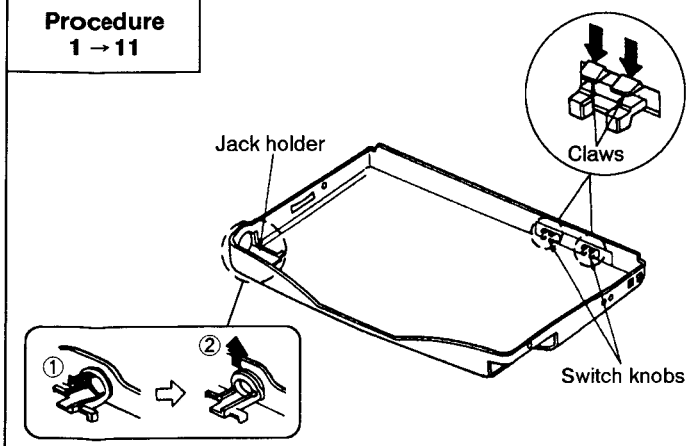
Procedure 1 → 6 → 10



• Remove the 4 screws(❶ ~ ❹) to remove the parts shown in above.

Ref.No. 11	Removal of the jack holder and switch knobs

Procedure 1 → 11



■ Removal of the jack holder

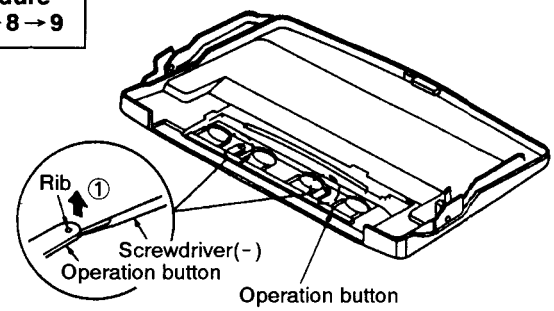
• Remove the jack holder in the direction of arrow ① and ②.

■ Removal of the switch knob

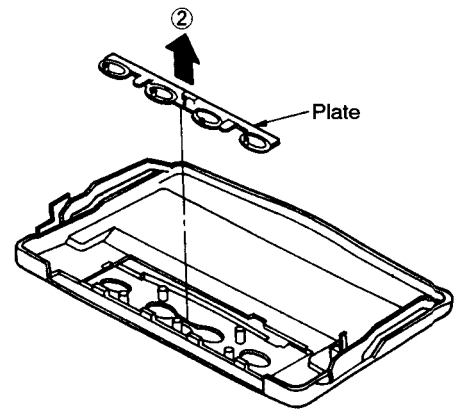
• Press the claws in the direction of arrow and remove the switch knob.

Ref.No. 9	Removal of the operation button, plate and frame

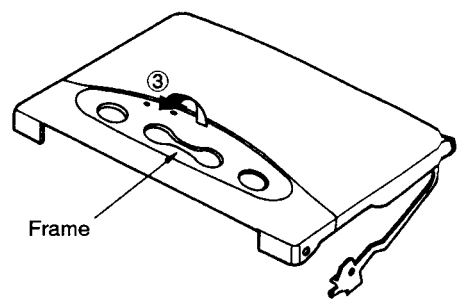
Procedure 1 → 6 → 8 → 9



1. Lift the operation button in the direction of arrow ① by the sharp tipped screwdriver(-), and then remove the operation button from the ribs.

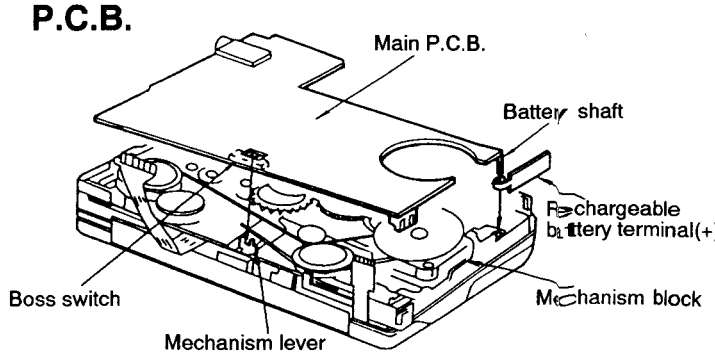


2. Remove the plate in the direction of arrow ②.



3. Remove the flame in the direction of arrow ③.

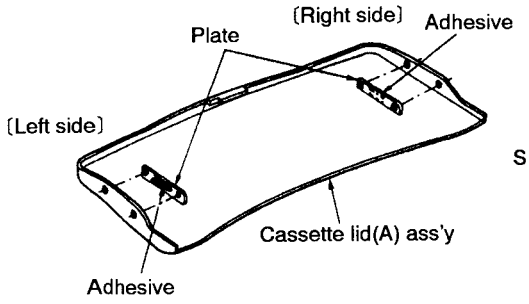
■ NOTICE FOR ASSEMBLING THE MAIN P.C.B.

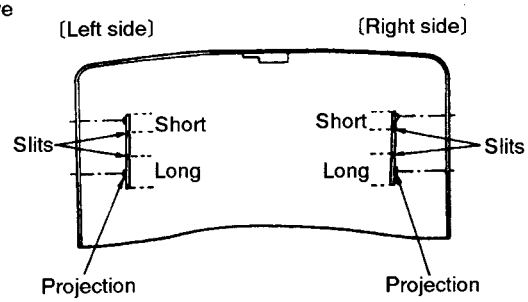


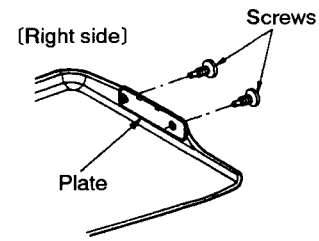
• Ensure the boss of switch mates the mechanism lever.

• Insert the battery shaft into the rechargeable battery terminal(+), and then install the main P.C.B. on the mechanism block.

■ ASSEMBLING THE CASSETTE LID(A) ASS'Y, CASSETTE LID AND LINK UNIT(L),(R)



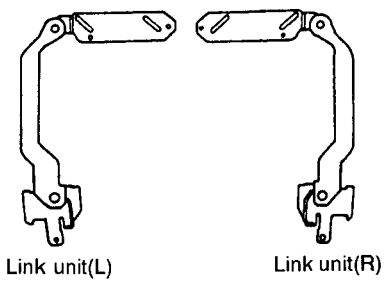


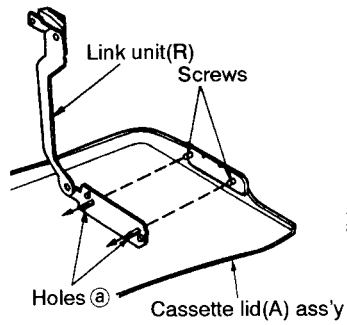


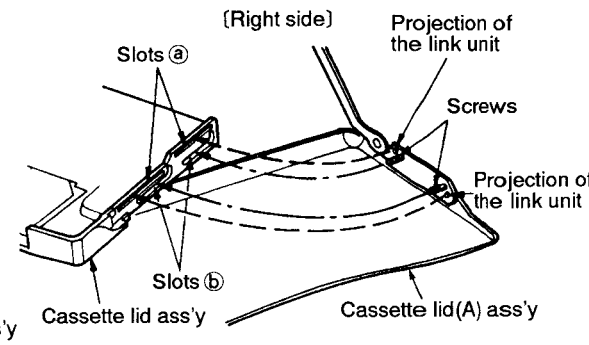
1. Fix the plate to cassette lid(A) ass'y temporarily by adhesive tape or adhesive(Both sides).

NOTE) As the plate is fixed, be careful with the direction of the plate.

2. Tighten the 2 screws at one side.

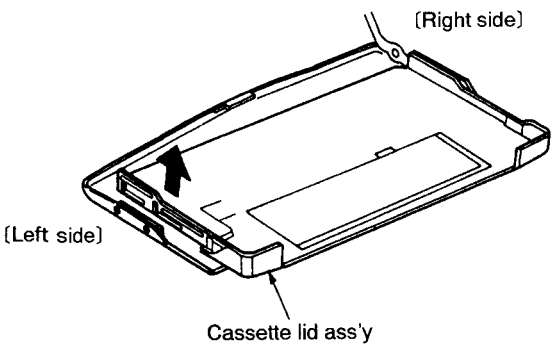


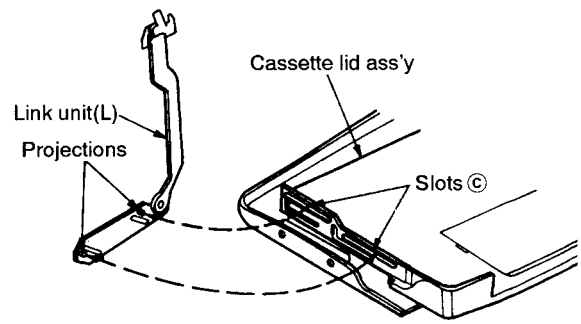




3. Align the screws with the hole of the link unit(R) ⓐ. And install the link unit(R) to the cassete lid(A) ass'y.
4. Fix the link unit(R) by hand.

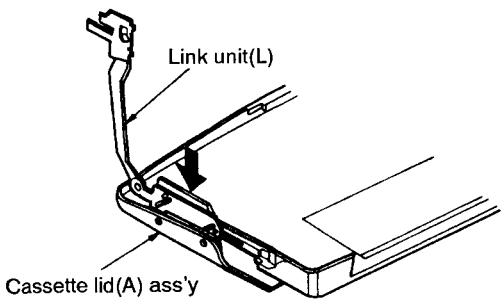
5. Install the cassette lid ass'y to cassette lid(A) ass'y.
   (• Align the slots ⓐ with the projections of the link unit(R).
   • Align the slots ⓑ with the screws.)

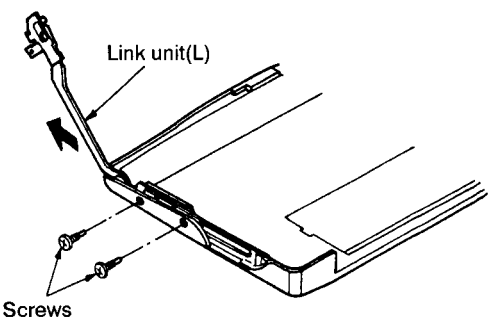




6. Lift the left side of the cassette lid ass'y a little.

7. Align the slots ⓒ with projections of the link unit(L).
8. Install the link unit(L) to the cassete lid ass'y.



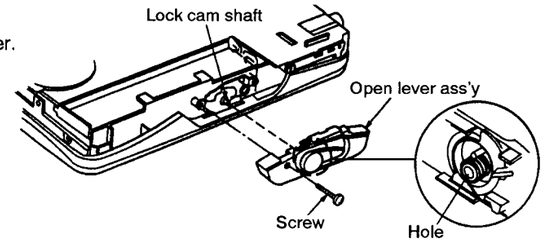


9. Install the link unit(L)(installed to cassette lid ass'y) to the cassete lid(A) ass'y.

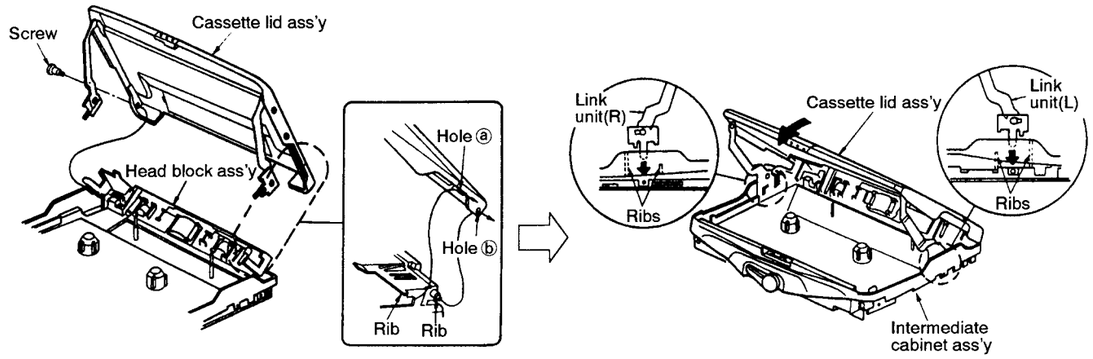
10. Move the link unit(L) in the direction of arrow as possible. Tighten the 2 screws.

■ ASSEMBLING THE OPEN LEVER ASS'Y

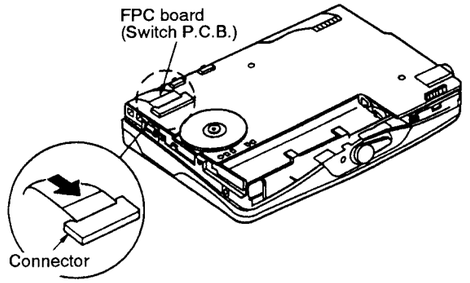
1. Ensure the lock cam shaft mates the hole of the open lever.
2. Tighten the screw.



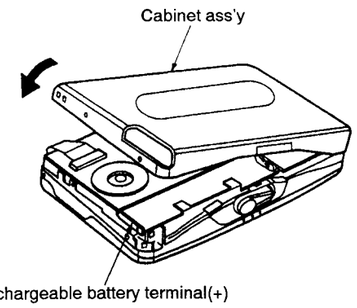
■ ASSEMBLING THE CASSETTE LID ASS'Y AND CABINET



1. Align the ribs of the head block ass'y with the holes ⓐ and ⓑ in the cassette lid ass'y.
2. Install the cassette lid ass'y to the head block ass'y and tighten the screw.

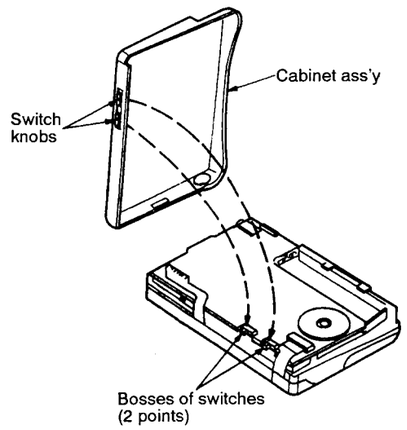


5. Connect the FPC board of switch P.C.B. to the connector.



7. Install the cabinet ass'y with pushing the rechargeable battery terminal(+).
8. Make sure the cabinet ass'y is installed completely.

3. Insert the link ass'y(L side and R side) in between 2 ribs of the intermediate cabinet.
4. Insert the link ass'y in the intermediate cabinet and close the cassette lid ass'y at the same time.



6. Make sure the bosses of the switch are fit in the knobs of the switch when assembling(2 points).

Note: Before installing the switch knob, be sure to check the claws for defects that would render the claws unserviceable.
(If a white line like white wax on a claw is found, the claw may be broken when installing the switch knob.)

■ HOW TO CHECK OPERATIONS DURING DISASSEMBLY AND SERVICING

- Check operations during disassembly following the steps.
  1) Set the condition as shown in Fig. 1 in accordance with Disassembly Instructions. (DO NOT remove the solders on the head FPC.)
  2) Connect the PCB and motor with the extension cord (RFKZ0002).
  3) Solder the short land with a lead wire and then short-circuit them.
     - Short-circuit the short land Ⓐ. (Motor power: ON)
     - Short-circuit the short land Ⓑ. (Microcomputer: reset)
     - Short-circuit the short land Ⓒ. (Power: ON)
     - Short-circuit the short land Ⓓ. (Tape in/out SW: ON)

     Note: See next page for the points to be short-circuited.
  4) Connect the rechargeable battery (+) terminal and the rechargeable battery (−) terminal foil to the power source (DC 1.5V) with a lead wire. (Fig. 1)
  5) Connect the rechargeable battery (−) terminal foil and the rechargeable battery (−) terminal with a lead wire (mechanism earth).
  6) Manually operate the plunger arm when checking the PLAY/STOP operation.
     - Manually pulling the plunger arm once sets the FWD mode; twice, REV; and, three times, STOP.

     Notes:
     - Operate the plunger arm manually. Even if the operation buttons are pressed, the plunger will not be actuated.
     - Even if the mechanism unit is switched to the FWD mode in Step 6, the head change-over switch (IC1) will remain in the REV position, so set the REV mode to check the audio.
       Before checking the operation problems and adjustments, be sure to release the hold state. (Refer to page 2)
     - After checking, unsolder the short land Ⓐ, Ⓑ and Ⓒ.

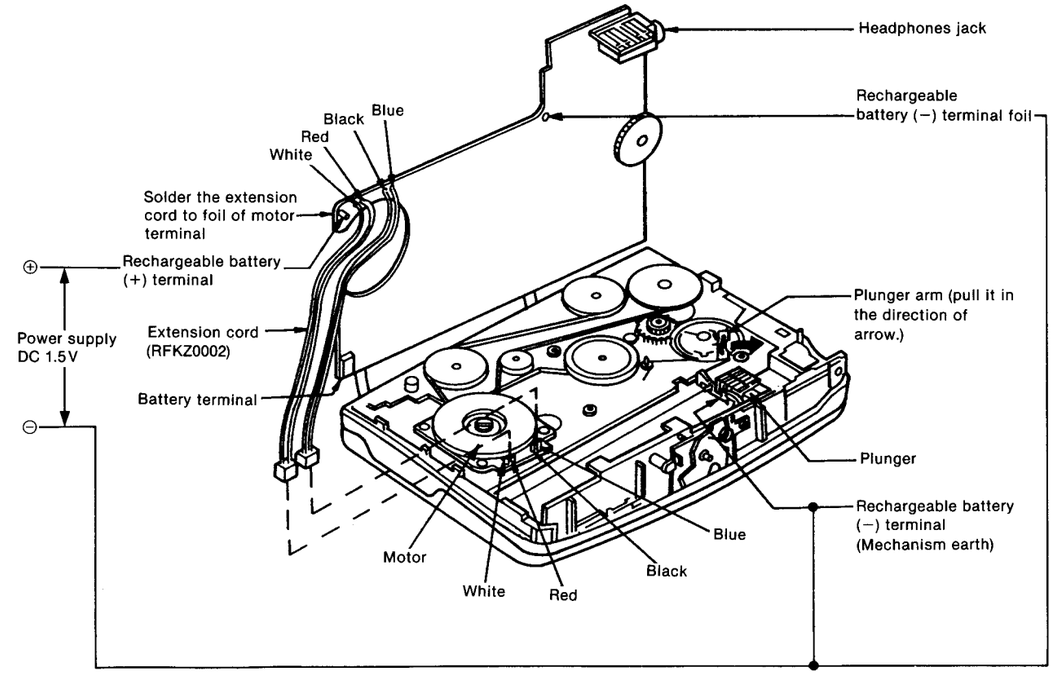
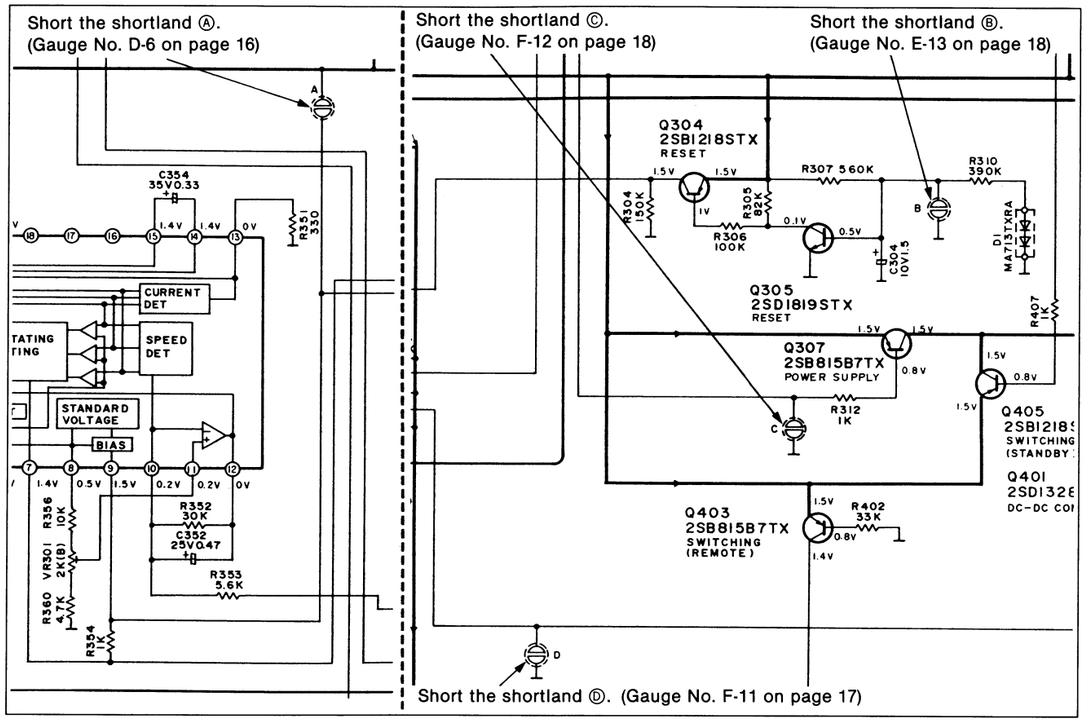


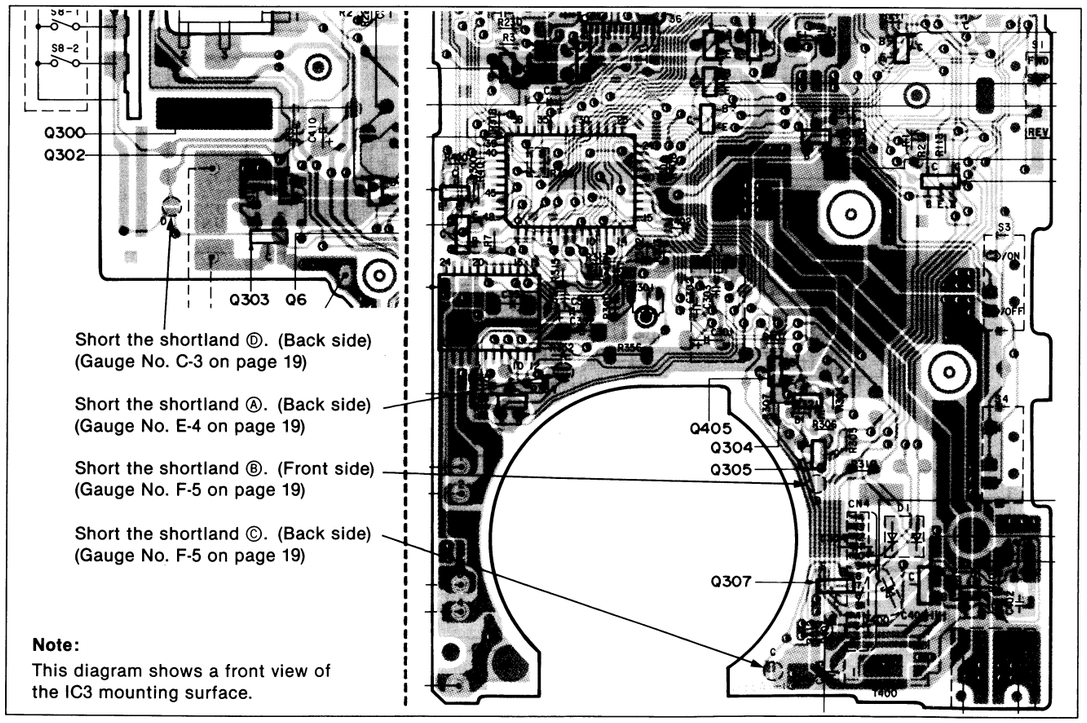
Fig. 1

• **Short-circuit points**

SCHEMATIC DIAGRAM



PRINTED CIRCUIT BOARD


Q300
Q302
Q303
Q6
Short the shortland Ⓓ. (Back side) (Gauge No. C-3 on page 19)
Short the shortland Ⓐ. (Back side) (Gauge No. E-4 on page 19)
Short the shortland Ⓑ. (Front side) (Gauge No. F-5 on page 19)
Short the shortland Ⓒ. (Back side) (Gauge No. F-5 on page 19)
Q405
Q304
Q305
Q307
Note:
This diagram shows a front view of the IC3 mounting surface.

■ MEASUREMENTS AND ADJUSTMENTS

● ADJUSTMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ADJUSTMENTS	
1. Set volume control to maximum. 2. Set Dolby NR Switch to OFF.	3. Release the hold state. (Refer to page 2) 4. Set power source voltage to 1.5V DC.

• CONTROL POSITIONS AND EQUIPMENT USED

1. Frequency counter

● TAPE SECTION

ITEM	TEST TAPE	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
Tape speed adjustment	QZZCWAT (3kHz, −10dB)	Connect the frequency counter to Headphones jack (16Ω) (Refer to Fig. 1)	VR301 (Refer to Fig. 2)	Playback the central part of the tape and adjust VR301 so that the tape speed is as follows. Forward: 2990±10Hz Reverse: 2940~3050Hz Make sure that the frequency range in within ±60Hz for between "Forward" and "Reverse" mode.

Note: The playback head is supplied on the head arm assembly. (See the Mechanism parts location on page 24.)
The assembly requires no adjustment.

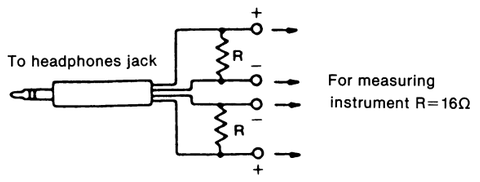


Fig. 1

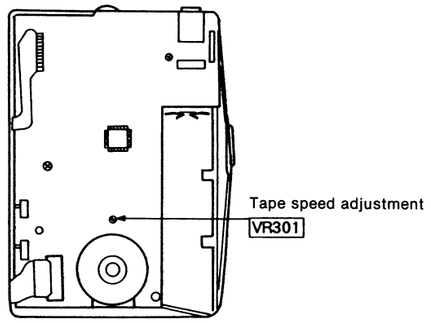
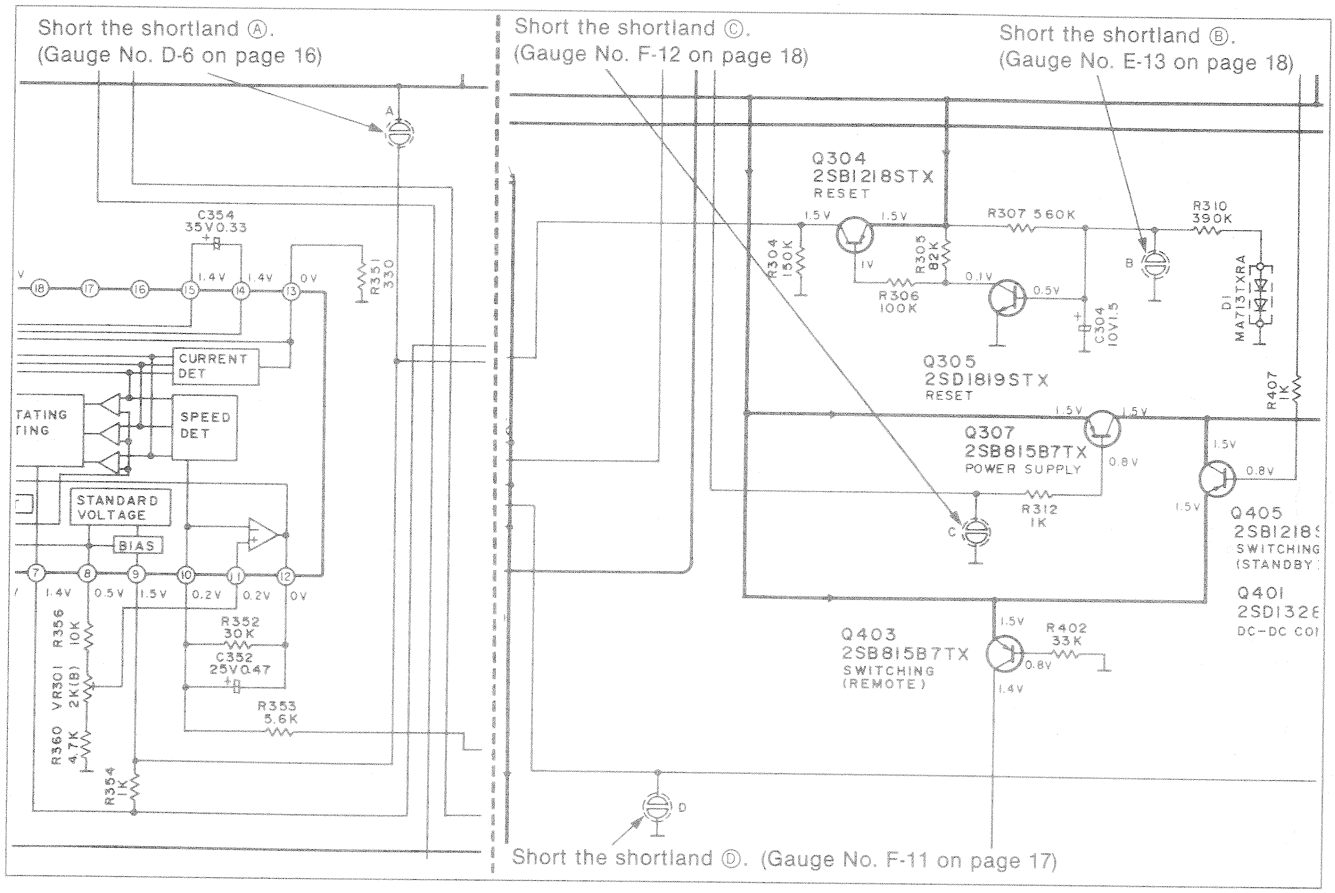


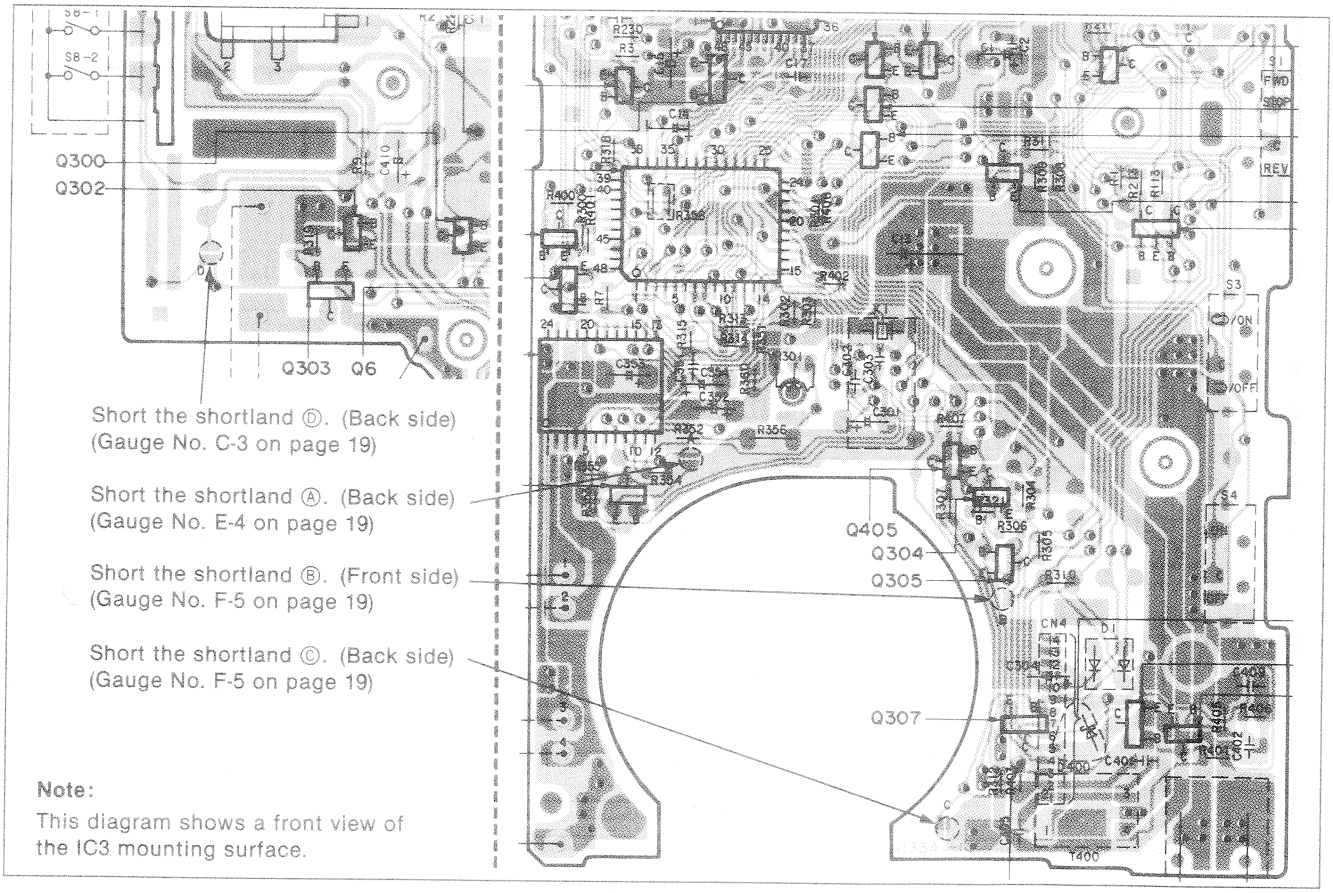
Fig. 2

• Short-circuit points

SCHEMATIC DIAGRAM



PRINTED CIRCUIT BOARD



Note:
This diagram shows a front view of the IC3 mounting surface.

■ SCHEMATIC DIAGRAM

(See parts list on pages 25～27.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

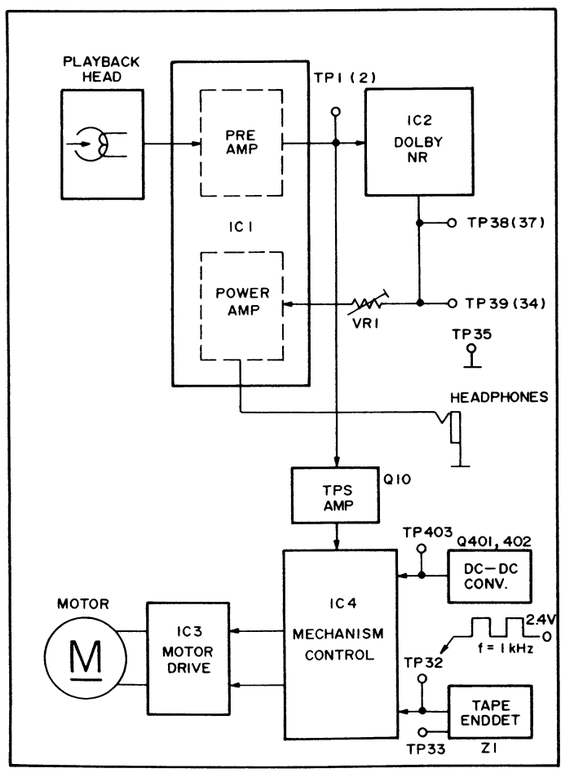
- **S1** : FWD/REV switch in "FWD" position.
- **S3** : Play mode selector in "↻" position. (↻/ON• ↩/OFF)
- **S4** : Dolby noise reduction (DOLBY NR) switch in "OFF" position.
- **S8-1** : Tape detector (OPEN/CLOSE) switch in "OPEN" position.
- **S8-2** : Tape selector switch in "OFF (METAL)" position. (ON: NORMAL, OFF: METAL)
- **S301** : Rewind (REW TPS) switch.
- **S302** : Fast Forward (FF TPS) switch.
- **S303** : Play/direction (◀▶) switch.
- **S304** : Stop (STOP) switch.
- **VR1-1, VR1-2**: Volume adjustment VR.
- **VR301** : Tape speed adjustment VR.
- DC voltage measurements are taken with electronics voltmeter from negative terminal of battery. No mark...Playback.

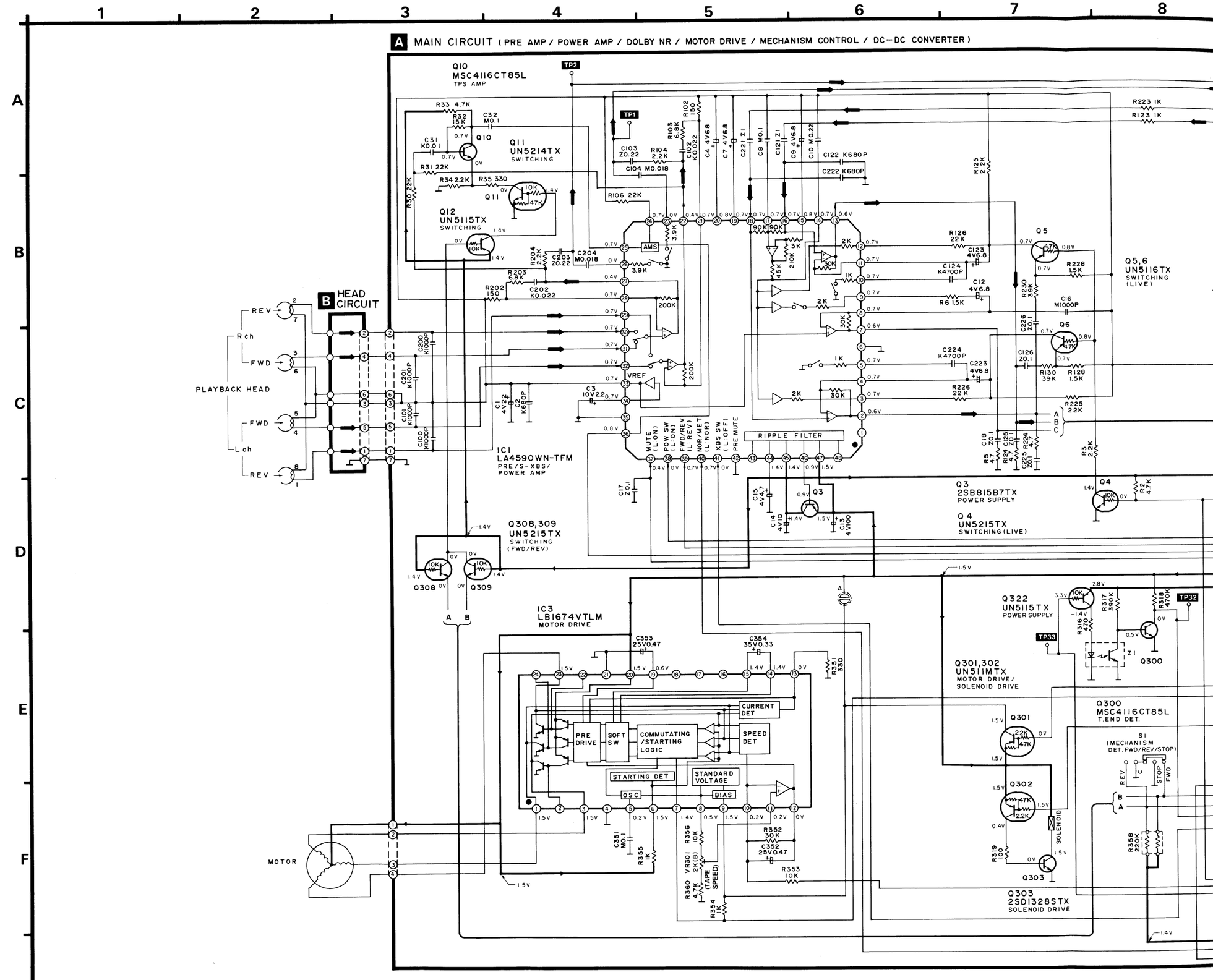
  Volume VR [MAX...155mA / MIN....135mA]

- Signal line

  ▬▶ : +B line, ▬▶ : Playback signal.

• BLOCK DIAGRAM





7 8 9 10 11 12 13 14 15 16

C SWITCH CIRCUIT

Q355 2SD1819STX STABILIZER

Q356 2SD1819STX STABILIZER

Q352 2SB1218TXRA SWITCHING (TOUCH SENSOR)

Q351 2SB1218STX SWITCHING (TOUCH SENSOR)

Q354 2SD1819STX SWITCHING (TOUCH SENSOR)

Q353 2SD1819STX SWITCHING (TOUCH SENSOR)

CN4

(HOLD OFF)

D301 LN1361CUY-TR

D302 LN1261CTR

(OPR/BATT)

S301 (REW)

S302 (FF)

S303 (◁▷)

S304 (□)

IC2 TA7793FNEL DOLBY NR

S4 (DOLBY NR)

Q2 RVTFMG4TX SWITCHING (LIVE)

Q7,8 MSC4116CT85L HIGH CUT FILTER

Q9 RVTFMG4TX SWITCHING(ASC)

Q5,6 UN5116TX SWITCHING (LIVE)

Q306 MSC4116CT85L LED DRIVE

JK1 HEADPHONES 16Ω (Φ3.5)

Q322 UN5115TX POWER SUPPLY

Q300 MSC4116CT85L T.END DET.

Q303 2SD1328STX SOLENOID DRIVE

S1 (MECHANISM DET. FWD/REV/STOP)

IC4 M34211M4088G MICRO COMPUTER (MECHANISM CONTROL)

Q404 2SB1218STX SWITCHING(REMOTE)

S3 (REV MODE/B.S)

Q304 2SB1218STX RESET

Q305 2SD1819STX RESET

Q307 2SB815B7TX POWER SUPPLY

Q405 2SB1218STX SWITCHING (STANDBY)

Q403 2SB815B7TX SWITCHING (REMOTE)

Q401 2SD1328STXRA DC-DC CONV.

Q402 MSC4116CT85L DC-DC CONV.

RECHARGEABLE BATTERY DC 1.2V (RP-BP62EYA)

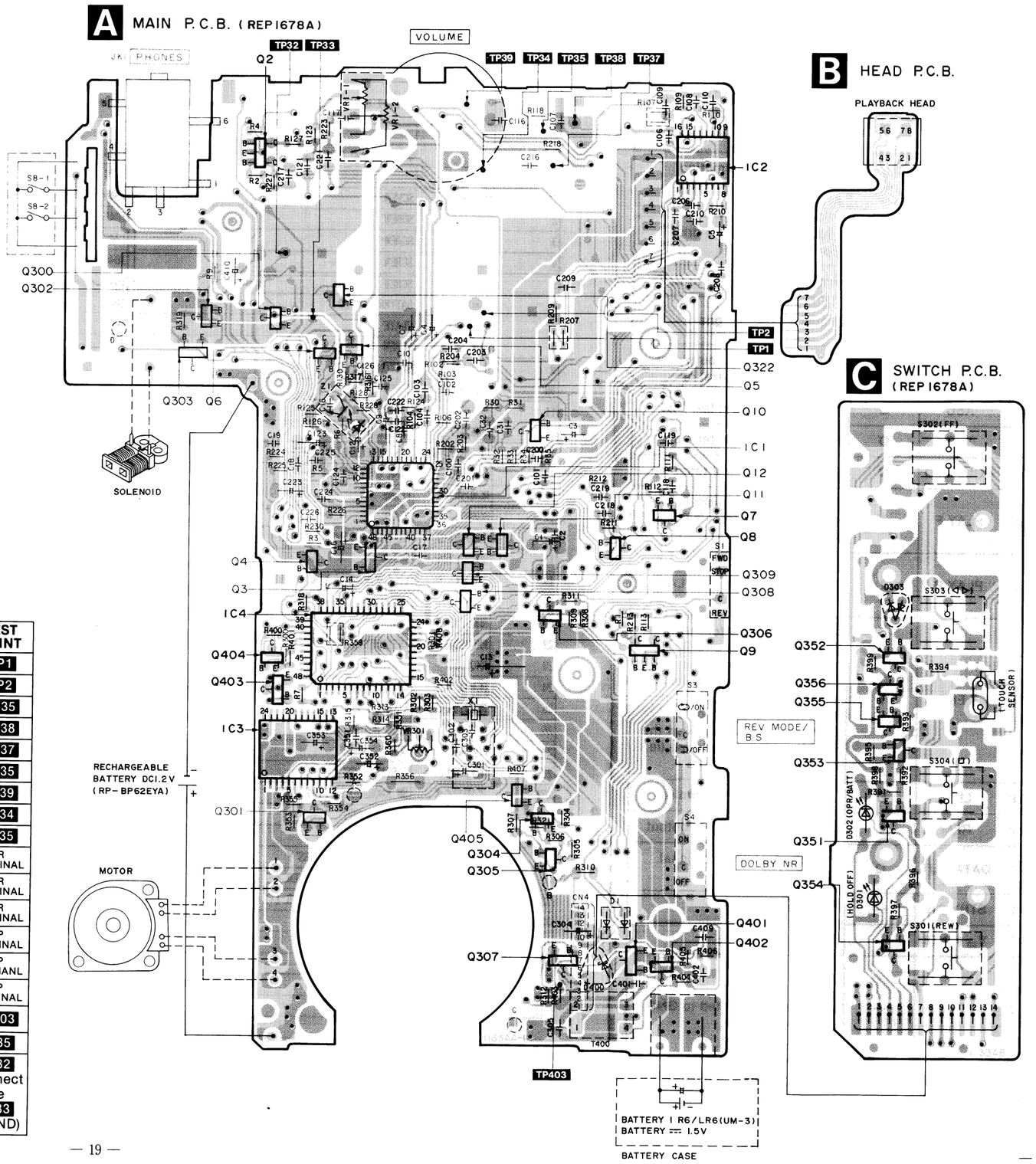
BATTERY CASE

BATTERY 1 R6/LR6 (UM-3) BATTERY ⎓ 1.5V

S8-1 (TAPE IN/OUT)

S8-2 (METAL/NORMAL)

■ PRINTED CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM



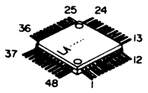
• CHECK POINT OF SIGNAL

CHECK ITEM		TEST POINT
HEAD → PRE OUTPUT	Lch	TP1
	Rch	TP2
	GND	TP35
PRE OUTPUT → DOLBY NR OUTPUT	Lch	TP38
	Rch	TP37
	GND	TP35
DOLBY NR OUTPUT → VR INPUT	Lch	TP39
	Rch	TP34
	COM	TP35
VR INPUT → VR OUTPUT	Lch	VR TERMINAL
	Rch	VR TERMINAL
	COM	VR TERMINAL
POWER AMP OUTPUT → HEADPHONE OUTPUT	Lch	HP TERMINAL
	Rch	HP TERMIANL
	COM	HP TERMINAL
DC-DC CONVERTER (BOOSTER)	2.4V OUTPUT	TP403
	GND	TP35
PHOTO COUPLER (END)	PULSE OUTPUT	TP32 (Connect the TP33 to GND)

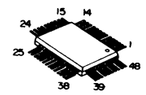
• Terminal guide of IC's, transistors and diodes

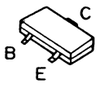
TA7793FNEL	16 Pin
LB1674VTLM	24 Pin

LA4590WN-TFM



M34211M4088G

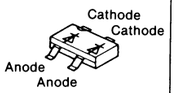




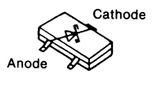
2SB815B7TX
2SB1218STX
2SB1218TXRA
2SD1328STX
2SD1328STXRA
2SD1819STX
UN511MTX
UN5115TX
UN5116TX
UN5214TX
UN5215TX
MSC4116CT85L

RVTFMG4TX

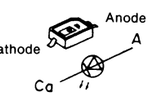
MA713TXRA



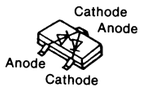
MA720TX



LN1261CTR
LN1361CUY-TR



MA147TX



Notes:

- In this printed circuit board diagram, the parts and foil patterns on the board facing toward you are printed in black.
  The opposite side is printed in blue.
- The " • " mark denotes the connection points of double-faced foil patterns (through holes) on both side of the printed circuit board.
- This printed circuit board diagram may be modified at any time with the development of new technology.

■TERMINAL FUNCTION OF IC

• IC4 (M34211M4088G): Mechanism control

Pin No.	Mark	I/O Division	Function
1	TEST	I	Test terminal (Note used, connected to power supply)
2	STOP	I	Key switch detect (STOP) terminal
3	PLAY	I	Key switch detect (PLAY) terminal
4	FF	I	Key switch detect (FF) terminal
5	REW	I	Key switch detect (REW) terminal
6	OPEN	I	Inputs the signal that detects whether the cassette tape is inserted. "L": ON (Close); the tape is inserted. "H": OFF (Open); the tape is not inserted.
7	REV MODE	I	Reverse mode select terminal "L": ⇄ mode "H": ⇄ mode
8	S75: L	—	Not used, connected to GND.
9	HOLD	I	Hold detect terminal "L": ON (HOLD) "H": OFF
10	XOUT	O	Crystal oscillator terminal (F=32kHz)
11	XIN	I	
12	CE	I	Not used, connected to power supply
13	RESET	I	Reset detect terminal
14	TPS IN	I	TPS control terminal
15	DATA INT	I	Remote control data signal input
16	C	—	Not used, open
17	V_{DD}	I	Power supply terminal
18	CNV_{SS}	—	GND terminal
19	V_{SS} (GND)		
20	HEAVY LED	—	Not used, connected to GND
21	LED R	O	Head switching signal output.
22	TPS BLK	O	TPS control terminal
23	LIVE LED	—	Not used, connected to GND
24	POW	O	Outputs the power switching signal. (POWER SW)
25	MOTOR	O	Outputs the motor drive signal (MOTOR ON).

Pin No.	Mark	I/O Division	Function
26	M-CCW	O	Outputs the reversing motor drive control signal.
27	M-SPEED	O	Outputs the motor speed up signal.
28	MUTE	O	Outputs the amp. muting signal. At MUTE: ON
29	SOL	O	Outputs the solenoid drive signal.
30	STBY-L	—	Not used, connected to GND
31	STBY BLNK	O	Standby control signal
32	BEEP	O	Confirmation beep output of remote control operation
33	ASC	O	Tone (ASC) control terminal
34	XBS	O	Tone (XBS) control terminal
35	HOLD LED	O	LED (HOLD) control terminal
36	PLAY F	I	Inputs the mechanism status detection signal (FWD PLAY). At low: ON
37	PLAY R	I	Inputs the mechanism status detection signal (REV PLAY). At low: ON
38	T END	I	Inputs the signal for the detection of tape rotation. When the pulse signal is input: The current mode remains set as the tape is rotating. No pulse signal: Stops or starts reverse playback as the tape has stopped rotating (ie, reached the end).
39	LIVE	O	Tone (LIVE) control terminal
40	REM	O	Remote control signal output
41	DATA OUT	O	Remote control data signal output
42	STBY SW	—	Not used, open
43	V_{SS} (GND)	—	GND terminal
44	VOL 1	—	Not used, connected to GND
45	VOL 2		
46	VOL 3		
47	ASC LED	—	Not used, connected to GND
48	PHOTO CONT	O	Tape end detect signal terminal

■REPLACEMENT PARTS LIST

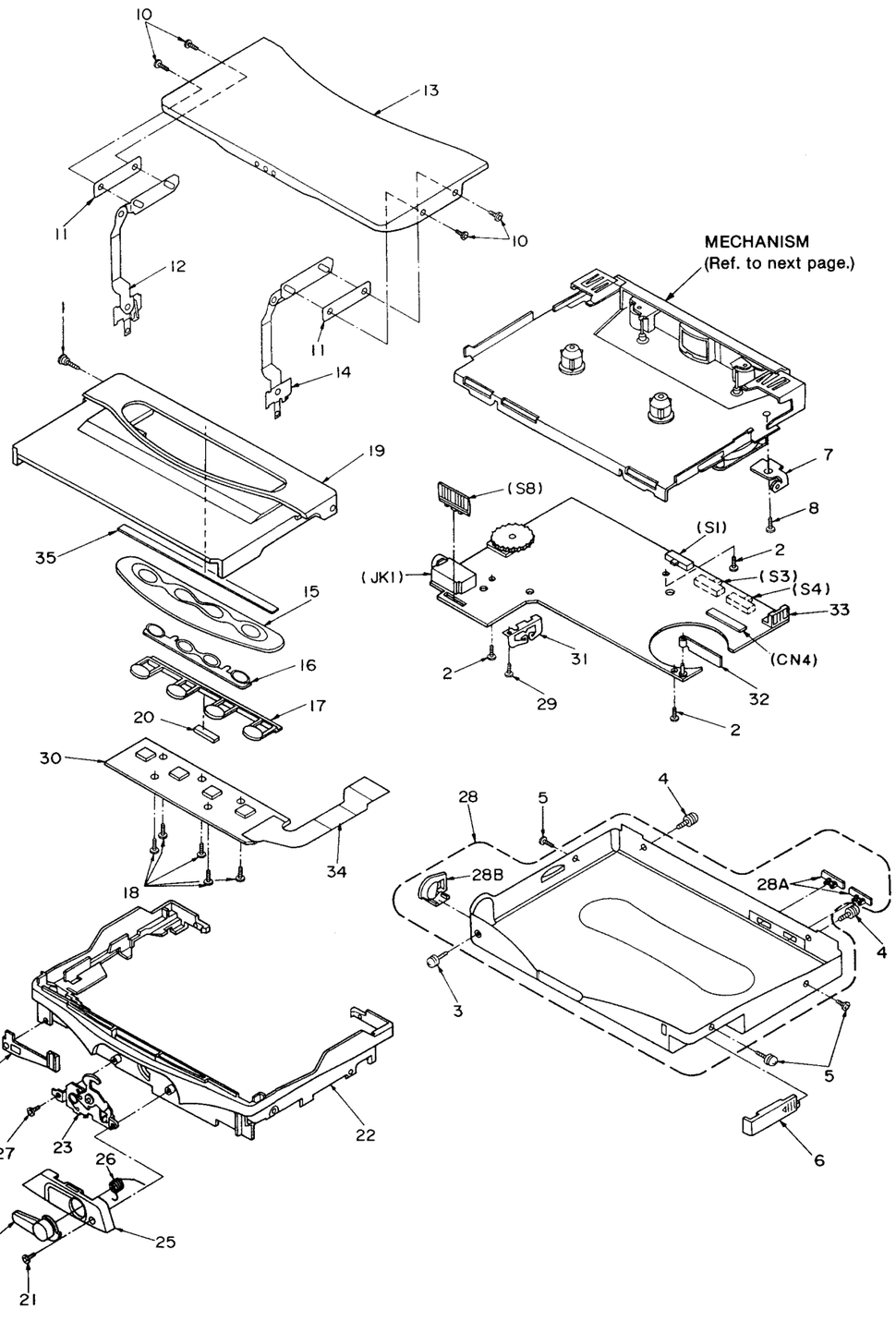
Notes: *Important safety notice:
Components identified by △ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RHD14008-K	SCREW	
2	RHE5119ZA	SCREW	
3	RHE5169YA	SCREW	
4	RHQ0027-K	SCREW	
5	RHQ0030-K	SCREW	
6	RKK0058-K	BATTERY COVER	
7	RHN20005	PLATE	
8	RHQ0029-K	SCREW	
9	RMQ0404	SWITCH SPACER	
10	RHQ0035-K	SCREW	
11	RMA0731	PLATE	
12	RXM0047	LINK UNIT(L)	
13	RFKLQS75-K	CASSETTE LID(A) ASS'Y	
14	RXM0046	LINK UNIT(R)	
15	RGK0583-S	FRAME	
16	RGK0584-H	PLATE	
17	RGU0961-S	PLAY/STOP/FF/REW BUTTON	
18	RHE5068ZA	SCREW	
19	RKF0338-K	CASSETTE LID(B) ASS'Y	
20	RSQ0040	CONDUCTIVE RUBBER	
21	RHQ0028-S	SCREW	
22	RKQ0153-S	INTERMEDIATE CABINET	
23	RXQ0303	CAM LOCK UNIT	
24	RGW0173-S	OPEN KNOB	
25	RKQ0154-S	SIDE CABINET	
26	RMB0300	AUTO RETURN SPRING	
27	XQN14+CJ3FZ	SCREW	
28	RYK0394-K	CABINET ASS'Y	
28A	RGV0114-K	SW KNOB, DOLBY NR/P.MODE	
28B	RMR0702-K	JACK HOLDER	
29	RHQ0013-1	SCREW	
30	REP1713A	OPERATION P.C.B. ASS'Y	
31	RJC99004-2	RECHARGEABLE BATT. TER. (-)	
32	RJC99003-3	RECHARGEABLE BATT. TER. (+)	
33	RJH9206	CONNECTION TERMINAL	
34	RJB1156A	F.P.C. BOARD	
35	RMZ0267	INSULATING SHEET	
		MECHANISM	
101	HPX-26NB1AT	MOTOR	
102	XQS14+A18FZ	SCREW	
103	RDV0016	BELT	
104	RXQ0277	HEAD BLOCK ASS'Y	

Ref. No.	Part No.	Part Name & Description	Remarks
104A	RNW101ZA	WASHER	
104B	RME0125	PINCH ROLLER SPRING(L)	
104C	RME0005	PINCH ROLLER SPRING(R)	
104D	RXL0004-1	PINCH ROLLER ARM(L)	
104E	RXL0005	PINCH ROLLER ARM(R)	
104F	RMB0245	HEAD ARM SPRING(L)	
104G	RME0114	HEAD ARM SPRING(R)	
104H	RHD14032-1	SCREW	
105	RMA0023	HOLDER(R)	
106	XQN14+A3	SCREW	
107	RHW42002	WASHER	
108	RFKRQS35N1	MECHANISM BLOCK ASS'Y	
108A	RMQ0292	HOLD PIECE(L)	
108B	RMQ0293	HOLD PIECE(R)	
108C	RHD14031	SCREW	
109	RKN0077-K	MECHANISM SHEET	
		PACKING MATERIAL	
P1	RPK0423	PACKING CASE	
P2	RPQF0100	ACCESSORIES BOX	
P3	RPQ0409	PAD	
		ACCESSORIES	
A1	RQT2256-B	INSTRUCTION MANUAL	(E, EB)
A1	RQT2257-E	INSTRUCTION MANUAL	(E)
A2	RFA0310-K	BATTERY CASE	
A2-1	RKK0053-K	BATTERY CASE LID	
A3	RFEV121P-KS	S.EARPHONES WITH CORD CLIP	
A3-1	RGQ0090-K	CORD CLIP	
A4	RP-BP62EYA	RECHARGEABLE BATTERY	
A5	RP-BC155EY-0	BATTERY CHARGER	(E)△
A5	RP-BC155EBYA	BATTERY CHARGER	(EB)△
A6	RQCB0169	SERVICENTER LIST	
A7	RQA0013A	WARRANTY CARD	
A8	RFC0019-K	CARRYING BAG	
A9 ※	RKB205ZA-0	EAR PADS	

※ This part is supplied only with replacement parts list.

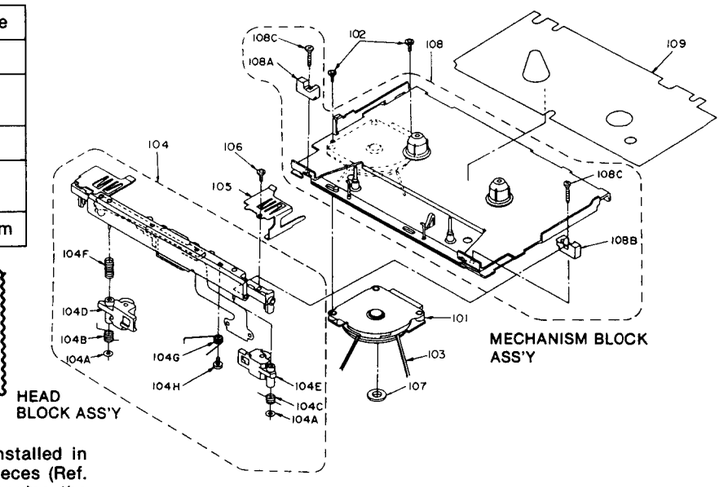
■ CABINET PARTS LOCATION



■ MECHANISM PARTS LOCATION

	FWD & REV mode
Wow and flutter	0.3% (WRMS)
Pressure of pinch roller	120±20g
Take-up tension	More than 60g
Playback torque	20^{+15}_{-5}g•cm
FF/REW torque	More than 60g•cm

The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.



Note:

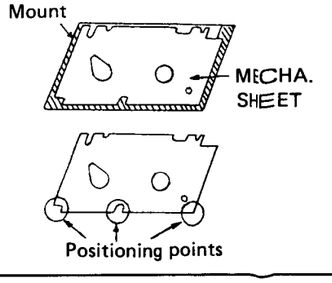
* Exchange the original hold pieces installed in the mechanism with the new hold pieces (Ref. No. 108A, 108B) when repairing. Otherwise, the head block (Ref. No. 104) cannot be installed.

■ How to apply the Mechanism Sheet

1. Replacing/Repairing of a mechanism block.
   Replace or repair using a shared mechanism block.(The replacing/repairing procedure remains the same.)
2. If after repairing with a shared mechanism block, a user complains that the mechanism sheet is different from the original, do the following:
   (1) Explain that the number of replacement parts has been consolidated.
   (2) Attach an original mechanism sheet covering the mechanism sheet already attached to the shared mechanism block. (Doubling, doubling does not affect the unit's performance.)
   - Never attach another mechanism sheet to the doubled mechanism sheets.
   - Never remove the already attached sheet. Adhesive material cannot be removed completely.
   - Position the sheet carefully, when attaching it.

■ Attaching instructions

You can attach the mechanism sheet smoothly if you position the attachment line on the side where the head is to be installed.

Procedure 1: (Preparation)	Peel off the sheet from mount.	
Procedure 2: (Positioning)	Fit the encircled marks of an original sheet with those of sheet already attached.	
Procedure 3: (Attachment)	Attach the sheet.	

■ REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	LA4590WN-TFM	PRE/S-XBS/POWER AMP	
IC2	TA7793FNEL	DOLBY NR	
IC3	LB1674VTLM	MOTOR DRIVE	
IC4	M34211M4088G	MECHANISM CONTROL	
		TRANSISTOR(S)	
Q2	RVTFMG4TX	TRANSISTOR	
Q3	2SB815B7TX	TRANSISTOR	
Q4	UN5215TX	TRANSISTOR	
Q5, 6	UN5116TX	TRANSISTOR	
Q7, 8	MSC4116CT85L	TRANSISTOR	
Q9	RVTFMG4TX	TRANSISTOR	
Q10	MSC4116CT85L	TRANSISTOR	
Q11	UN5214TX	TRANSISTOR	
Q12	UN5115TX	TRANSISTOR	
Q300	MSC4116CT85L	TRANSISTOR	
Q301, 302	UN511MTX	TRANSISTOR	
Q303	2SD1328STX	TRANSISTOR	
Q304	2SB1218STX	TRANSISTOR	
Q305	2SD1819STX	TRANSISTOR	
Q306	MSC4116CT85L	TRANSISTOR	
Q307	2SB815B7TX	TRANSISTOR	
Q308, 309	UN5215TX	TRANSISTOR	
Q322	UN5115TX	TRANSISTOR	
Q351	2SB1218STX	TRANSISTOR	
Q352	2SB1218TXRA	TRANSISTOR	
Q353-356	2SD1819STX	TRANSISTOR	
Q401	2SD1328STXRA	TRANSISTOR	
Q402	MSC4116CT85L	TRANSISTOR	
Q403	2SB815B7TX	TRANSISTOR	
Q404, 405	2SB1218STX	TRANSISTOR	
		DIODE(S)	
D1	MA713TXRA	DIODE	
D301	LN1361CUY-TR	L. E. D.	
D302	LN1261CTR	L. E. D.	
D303	MA147TX	DIODE	
D400	MA720TX	DIODE	
		VARIABLE RESISTOR(S)	
VR1	EVUT0VA05A54	VOLUME	
VR301	EVM3SSX50B23	TAPE SPEED ADJ.	
		TRANSFORMER(S)	
T400	RLO9J010T-M	TRANSFORMER	

Ref. No.	Part No.	Part Name & Description	Remarks
		PHOTO COUPLER(S)	
Z1	GP2S27T6	PHOTO COUPLER	
		OSCILLATOR(S)	
X1	RSXC32K7S02T	OSCILLATOR(32KHz)	
		SWITCH(ES)	
S1	RSS2A002-A	FWD/REV	
S3	RSS2A010-A	REVERSE MODE/B. S	
S4	RSS2A010-A	DOLBY NR	
S8	RSH1B006-2U	TAPE DET. /TAPE SELECTOR	
S301	EVQPA801K	REW	
S302	EVQPA801K	FF	
S303	EVQPA801K	PLAY	
S304	EVQPA801K	STOP	
		CONNECTOR(S)	
CN4	RJS2A1114T	CONNECTOR(14P)	
		JACK(S)	
JK1	RJJ36T01-2C	HEADPHONES JACK	
		<PRINTED CIRCUIT BOARD	
		ASS'Y>	
PCB1	REP1678A	MAIN P. C. B.	(RTL)

Note:

- The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

■ RESISTORS AND CAPACITORS

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1 K = 1,000 (OHM), 1 M = 1,000 k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1, 2	ERJ3GEYJ472V	1/16W 4.7K
R3	ERJ3GEYJ222V	1/16W 2.2K
R4	ERJ3GEYJ183V	1/16W 18K
R5	ERJ3GEYJ4R7V	1/16W 4.7
R6	ERJ3GEYJ152V	1/16W 1.5K
R7	ERJ3GEYJ102V	1/16W 1K
R9	ERJ3GEYJ331V	1/16W 330
R30, 31	ERJ3GEYJ223V	1/16W 22K
R32	ERJ3GEYJ153V	1/16W 15K
R33	ERJ3GEYJ472V	1/16W 4.7K
R34	ERJ3GEYJ222V	1/16W 2.2K
R35	ERJ3GEYJ331V	1/16W 330
R102	ERJ3GEYJ151V	1/16W 150
R103	ERJ3GEYJ682V	1/16W 6.8K
R104	ERJ3GEYJ222V	1/16W 2.2K
R106	ERJ3GEYJ223V	1/16W 22K
R107	EXBV4V333JV	1/16W 33K
R109	ERJ3GEYJ133V	1/16W 13K
R110	ERJ3GEYJ394V	1/16W 390K
R111	ERJ3GEYJ223V	1/16W 22K
R112	ERJ3GEYJ101V	1/16W 100
R113	ERJ3GEYJ472V	1/16W 4.7K
R118	ERJ3GEYJ222V	1/16W 2.2K
R123	ERJ3GEYJ102V	1/16W 1K
R124	ERJ3GEYJ4R7V	1/16W 4.7
R125	ERJ3GEYJ222V	1/16W 2.2K
R126	ERJ3GEYJ223V	1/16W 22K
R127	ERJ3GEYJ182V	1/16W 1.8K
R128	ERJ3GEYJ152V	1/16W 1.5K
R130	ERJ3GEYJ393V	1/16W 39K
R202	ERJ3GEYJ151V	1/16W 150
R203	ERJ3GEYJ682V	1/16W 6.8K
R204	ERJ3GEYJ222V	1/16W 2.2K
R207	EXBV4V333J	1/16W 33K
R209	ERJ3GEYJ133V	1/16W 13K
R210	ERJ3GEYJ394V	1/16W 390K
R211	ERJ3GEYJ223V	1/16W 22K
R212	ERJ3GEYJ101V	1/16W 100
R213	ERJ3GEYJ472V	1/16W 4.7K
R218	ERJ3GEYJ222V	1/16W 2.2K
R223	ERJ3GEYJ102V	1/16W 1K
R224	ERJ3GEYJ4R7V	1/16W 4.7
R225	ERJ3GEYJ222V	1/16W 2.2K
R226	ERJ3GEYJ223V	1/16W 22K
R227	ERJ3GEYJ182V	1/16W 1.8K
R228	ERJ3GEYJ152V	1/16W 1.5K

Ref. No.	Part No.	Values & Remarks
R230	ERJ3GEYJ393V	1/16W 39K
R300	ERJ3GEYJ472V	1/16W 4.7K
R301	ERJ3GEYJ222V	1/16W 2.2K
R302	ERJ3GEYK106V	1/16W 10M
R303	ERJ3GEYJ334V	1/16W 330K
R304	ERJ3GEYJ154V	1/16W 150K
R305	ERJ3GEYJ823V	1/16W 82K
R306	ERJ3GEYJ104V	1/16W 100K
R307	ERJ6GEYF564V	1/10W 560K
R308	ERJ3GEYJ333V	1/16W 33K
R309	ERJ3GEYJ393V	1/16W 39K
R310	ERJ6GEYF394V	1/10W 390K
R311	ERJ3GEYJ122V	1/16W 1.2K
R312	ERJ3GEYJ102V	1/16W 1K
R313, 314	ERJ3GEYJ474V	1/16W 470K
R315	ERJ3GEYJ224V	1/16W 220K
R316	ERJ3GEYG471V	1/16W 470
R317	ERJ3GEYJ394V	1/16W 390K
R318	ERJ3GEYJ474V	1/16W 470K
R319	ERJ3GEYJ101V	1/16W 100
R321	ERJ3GEYJ471V	1/16W 470
R351	ERJ3GEYJ331V	1/16W 330
R352	ERJ3GEYJ303V	1/16W 30K
R353	ERJ3GEYJ103V	1/16W 10K
R354, 355	ERJ3GEYJ102V	1/16W 1K
R356	RRSN15J103UE	1/20W 10K
R358	EXBV4V224JV	1/16W 220K
R360	ERJ3GEYJ472V	1/16W 4.7K
R391	ERJ3GEYK106V	1/16W 10M
R392-394	ERJ3GEYJ104V	1/16W 100K
R395	ERJ3GEYJ684V	1/16W 680K
R396	ERJ3GEYJ103V	1/16W 10K
R397	ERJ3GEYJ684V	1/16W 680K
R398, 399	ERJ3GEYJ123V	1/16W 12K
R400	ERJ3GEYJ103V	1/16W 10K
R401	ERJ3GEYJ474V	1/16W 470K
R402	ERJ3GEYJ333V	1/16W 33K
R403	ERJ3GEYJ102V	1/16W 1K
R404	ERJ3GEYJ270V	1/16W 27
R405	ERJ3GEYG332V	1/16W 3.3K
R406	ERJ3GEYG102V	1/16W 1K
R407	ERJ3GEYJ102V	1/16W 1K
R408	ERJ3GEYJ473V	1/16W 47K
		CAPACITORS
C1	ECST0GY226RR	4V 22U
C2	ECUV1H681KBV	50V 680P
C3	ECST1AY225RR	10V 2.2U

Ref. No.	Part No.	Values & Remarks
C4	ECST0GY685RR	4V 6.8U
C5	ECST0GY156RR	4V 15U
C7	ECST0GY685RR	4V 6.8U
C8	ECUV1E104MBN	25V 0.1U
C9	ECST0GY685RR	4V 6.8U
C10	ECUV1C224MBM	16V 0.22U
C12	ECST0GY685RR	4V 6.8U
C13	ECST0GC107ZR	4V 100U
C14	RCSX0GY106RE	4V 10U
C15	ECST0GY475RR	4V 4.7U
C16	ECUV1H102MBV	50V 1000P
C17-19	ECUV1C104ZFV	16V 0.1U
C31	ECUV1E103KBV	25V 0.01U
C32	ECUV1E104MBN	25V 0.1U
C100, 101	ECUV1H102KBV	50V 1000P
C102	ECUV1C223KBV	16V 0.022U
C103	ECUV1C224ZFN	16V 0.22U
C104	ECUV1C183MBV	16V 0.018U
C106	ECUV1H332MBV	50V 3300P
C107	ECUV1E822MBV	25V 8200P
C108	ECUV1E103MBV	25V 0.01U
C109	ECUV1C105ZFN	16V 1U
C110	ECUV1C474ZFN	16V 0.47U
C116	ECUV1C105ZFN	16V 1U
C117	ECUV1C154MBN	16V 0.15U
C118	ECUV1H562KBV	50V 5600P
C119	ECUV1C223KBV	16V 0.022U
C121	ECUV1C105ZFN	16V 1U
C122	ECUV1H681KBV	50V 680P
C123	ECST0GY685RR	4V 6.8U
C124	ECUV1H472KBV	50V 4700P
C125, 126	ECUV1C104ZFV	16V 0.1U
C200, 201	ECUV1H102KBV	50V 1000P
C202	ECUV1C223KBV	16V 0.022U
C203	ECUV1C224ZFN	16V 0.22U
C204	ECUV1C183MBV	16V 0.018U
C206	ECUV1H332MBV	50V 3300P
C207	ECUV1E822MBV	25V 8200P
C208	ECUV1E103MBV	25V 0.01U
C209	ECUV1C105ZFN	16V 1U
C210	ECUV1C474ZFN	16V 0.47U
C216	ECUV1C105ZFN	16V 1U
C217	ECUV1C154MBN	16V 0.15U
C218	ECUV1H562KBV	50V 5600P
C219	ECUV1C223KBV	16V 0.022U
C221	ECUV1C105ZFN	16V 1U
C222	ECUV1H681KBV	50V 680P
C223	ECST0GY685RR	4V 6.8U
C224	ECUV1H472KBV	50V 4700P

Ref. No.	Part No.	Values & Remarks
C225, 226	ECUV1C104ZFV	16V 0.1U
C301	ECST0GY156RR	4V 15U
C302	ECUV1H050DCV	50V 5P
C303	ECUV1H330KCV	50V 33P
C304	RCST1AY155RE	10V 1.5U
C305	ECUV1C105ZFN	16V 1U
C351	ECUV1E104MBN	25V 0.1U
C352, 353	ECST1EY474RR	25V 0.47U
C354	RCST1VY334RE	35V 0.33U
C401	ECUV1H181KV	50V 180P
C402	ECUV1H102MBV	50V 1000P
C409	ECUV1C105ZFN	16V 1U
C410	RCSX0GY106RE	4V 10U

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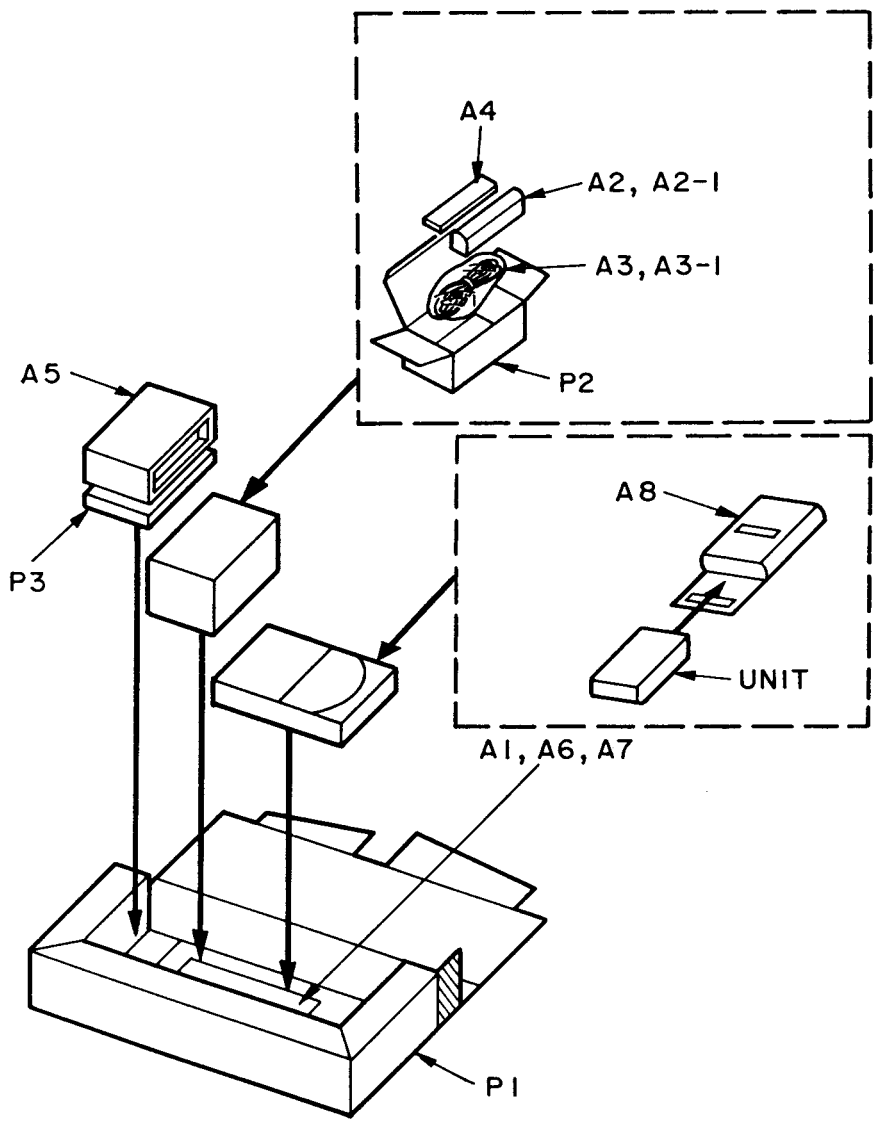

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